



SATURDAY, NOVEMBER 23, 1872.

### Horizontal Condensing Engine.

We illustrate one of a type of horizontal condensing engines, of which a number have been built by the Newry Foundry Company, Limited. The most striking feature in this engine is the arrangement of parallel motion employed for guiding the piston rod, this arrangement being one designed by Mr. Wm. Rennie, Jun., of Newry. It will be seen that, according to this arrangement, the crosshead is coupled to the upper end of

The air-pump and condenser are cast together, and the valves, which are of india-rubber, are easily accessible.

The cylinder is fitted with double slide valves, but is, we notice, not steam-jacketed. The governor is of the quick-speed type, making three revolutions to one of the engine, and it acts upon a combined slot and throttle valve at the top of the steam-chest. The connecting-rod is of a neat pattern, fitted with adjusting-screws for the brasses in place of cotter.

The Newry Foundry Company have now fifty engines at work with the parallel motion we have described, and we are informed that they give every satisfaction. The engines referred to have cylinders varying in size from 18in. to 32in. in diameter, so that the arrangement has been tested on a large scale.—*Engineering.*

### Caught on a Cow-Catcher.

We have heard of late so many stories of persons struck by a locomotive at full speed, caught on the cow-catcher, carried

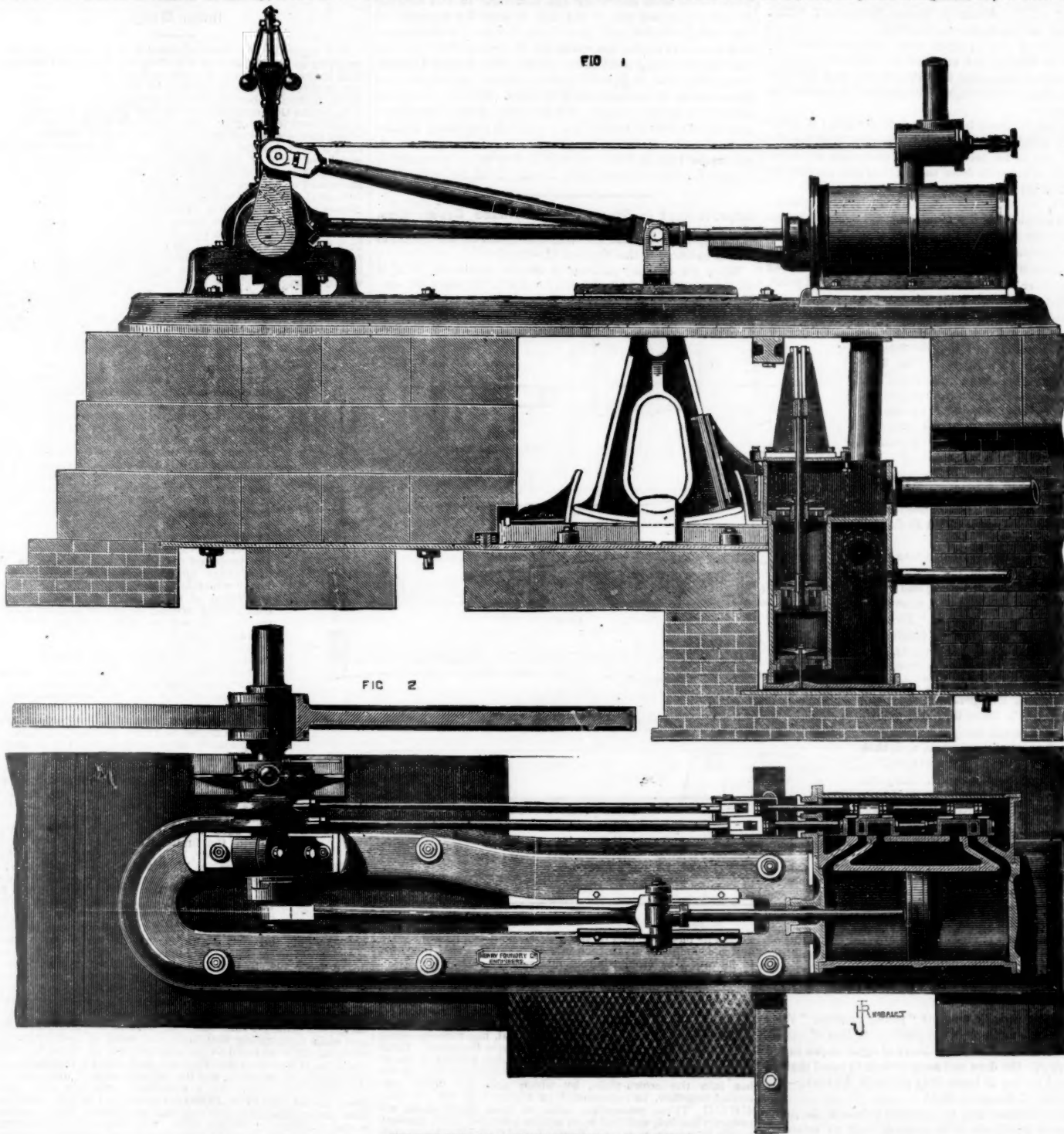
### Contributions.

#### Corrosion of Hollow Iron Columns.

TO THE EDITOR OF THE RAILROAD GAZETTE:

I have read an article in your paper of November 9, in which you expose the fallacies of a writer in *Van Nostrand's Magazine* upon "high-strung bridges," as he calls them, with which I cordially agree.

There are two points, however, mentioned by you which seem to require some notice from me. "The precise effect which takes place on the inside of a Phoenix column after many years use no one seems to know." I suppose you refer to the chemical effect. Phoenix columns have not been in use for very many years, the patent dating back only to 1863. In 1864



HORIZONTAL CONDENSING ENGINE.

what we may term a rocker frame, this being a casting having its base shaped to an arc of a circle struck with a radius equal to the height of the center of the crosshead pin above the base-plate, upon which the rocker frame oscillates. The base of the rocker frame is turned up in a lathe, while the plate on which it rolls is planed, so that the rocker frame oscillates smoothly as the piston moves to and fro.

The rocker frame in fact represents a portion of a large wheel, of which the crosshead gudgeon is the axle, and hence during the motion of the piston the crosshead is always carried smoothly parallel to the base-plate on which the rocker frame rolls. Side cheeks fixed to the base-plate prevent the rocker frame from moving laterally, while curved check pieces, placed as shown, bear against the ends of the rocker frame, and prevent any longitudinal sliding movement of the latter from taking place. The upper end of the rocking frame is guided laterally by working between guide pieces fixed on each slide of a slot in the engine base-plate, as shown. The whole arrangement is very simple and substantial, and necessarily involves but very little friction, while it also appears to us that it should run a long time without giving any trouble.

To the side of the rocking frame next the air-pump are bolted a pair of arms which extend on each side of the air-pump, and are connected by links to the crosshead of the latter. To one end of this crosshead is attached a force pump.

along unhurt and landed smiling at the next station, that we are inclined to class new ones among "reporters' inventions" rather than "hairbreadth escapes." Here is one from the *Washington Banner*, which may go for what it is worth:

"A day or two since, while the train from here, on the Louisville & Nashville road, was running at its usual rate of speed, a few miles north of Rich Pond, a negro girl attempted to cross the track, and was caught upon the cow-catcher. The velocity of the engine was so great that, instead of being thrown from the track, she was thrown back against the pilot, where she found a lodgment until some of the hands about the train, seeing the accident, ran forward to the engine and walked out upon the railing to her relief, expecting to find her at least very badly hurt. Their surprise was great, on reaching the pilot, to find the girl lying quietly and entirely uninjured upon the pilot, and apparently enjoying the ride. The engine sped on, and she was carried thus to the next station, a distance of four miles, and on arriving there she jumped from her riding-place and exclaimed: 'Dis is just de place I wanted to come to,' and went on her way rejoicing."

—Colonel Robert H. Cowan, formerly President of the Wilmington, Charlotte & Rutherford Railroad Company, died at his residence in Wilmington, N. C., on the morning of the 11th.

some of these columns were placed under the heating chamber of the blast furnace at Phoenixville, in a situation exposed to dripping of rain and moisture from steam caused by throwing water on hot slag to cool it. No attempt was made to make these columns air or water-tight, but they were painted on the inside with one coat of oxide of iron paint, which we prefer as the best protection yet known. In 1871, pieces were cut out of these columns, one of which I send you for examination, and which you will see to be in perfect preservation.

Paint on the outside of a column is heated by the sun's direct rays, and all the oil evaporated out of it. It has then no coherency, and is washed away by the rains. On the inside of a column none of these disturbing causes take effect, and it forms, so far as my experience goes, a permanent protection to the surface of the iron.

If an engineer is in doubt, he can convince himself by drilling out a piece from one of his posts or chords and examining the interior.

The second point is the effect produced by trains at high



speeds. You will find on Plate IX. of the Description of the Iron Bridge at Quincy, Ill., a diagram showing the different curves caused by speeds of five to twenty miles per hour over a 150ft. span, which were recorded by pencils at each post, in the manner suggested by you.

November 12, 1872.

T. C. CLARKE.

[On the piece of the column sent by Mr. Clarke, the corrosion on the inside is scarcely perceptible, while there is considerable corrosion on the outside.—EDITOR RAILROAD GAZETTE.]

### "Hoosier" on Location of Curves.

ATCHISON, KANSAS, November 7, 1872.

TO THE EDITOR OF THE RAILROAD GAZETTE:

In his paper No. 2, August 17, on the "Location of Curves," "Hoosier," after finding the angle of the tangent, assumes the tangent point or beginning of curve (B. C.), and thus establishes the radius of curvature. This method is not used by practical engineers.

The angle of the tangents being found (if the point of intersection is easily accessible), the engineer decides upon the degree of curvature to be used, and then, measuring the corresponding length of tangents from the point of intersection, determines the tangent point, or B. C.

Curves of one, two, three, etc., degrees are generally used; but were we to adopt "Hoosier's" method—governing the radius of curvature by assuming an absolute tangent point—it is easily seen that we could hardly ever have an even degree of curvature—that is, an even one, two or three degree curve. In telling the "young engineer" to set his transit over the tangent point, and, after sighting to the point of intersection of tangents and turning off half the degree of curvature, to chain out one hundred feet, he gives his pupil to understand that the tangent point will always be at a regular station. This is very seldom the case. Nine times out of ten curves begin at segmental or "plus" stations.

But "Hoosier" gives two methods of running in curves, and in a subsequent paper refers to them, seriously it would seem, too, as "either of the methods already explained."

The one method is, to set the instrument over the first tangent point, or B. C., and run in the curve from you; the other, to set the instrument over the other tangent point, or E. C., and run in the curve towards you.

This is something like the young man who, sitting with fingers interlaced, did nothing but twirl his thumbs over one another, and when asked if he could do anything else, answered, "Yes; I can do that backwards." So "Hoosier" is not confined to one method of putting in curves, for he can put them in backwards.

But his two methods of putting in curves presuppose that his "young engineers" are working only on a smooth and perfectly clear surface. He never sends them into the woods. This kind of "field engineering" may do well enough on the floor of a school-room, and that is the only field upon which it is practiced.

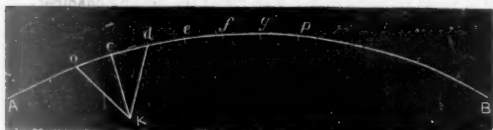
In his paper No. 3 (August 31), "Setting out Trestles on Curves," he writes:

"Say your bents are to be 12½ feet apart. Run in your curve by either of the methods already explained, and, beginning at a point in your curve 6½ feet from the point at which you wish to erect your first bent, establish a number of chords equal to the number of bents contained in an arc of your circle 12½ feet long. At the middle point of each of these chords set out a line at right angles with the chord. The point where this last line cuts your curve," etc., etc.

"The point where this last line cuts your curve?" "Hoosier" in the schoolroom again!

For he evidently intends that his "young engineer" shall trace with chalk or something else a continuous line of curve, in order that the line which he draws at right angles to his chords may cut it. He does not seem to bear in mind that in locating railroad curves we locate only points in the curve—not the unbroken line of the curve itself.

Would it not be a little better to establish points in the curve exactly where the bents are to be erected, than to establish points 6½ feet each side of those places, and then have to go to all the work of bisecting chords, running lines at right angles



to the chords, finding the points at which those lines intersect the curves, etc.?

Let A. B. be a curve, and we wish to erect a curve at c, and thence toward B at d, e, f, g, 12½ feet apart.

Locate the points c, d, e, f, g 12½ feet apart where the bents are required, and also the points o and p (where bents are not required) 12½ feet from c and g respectively. Now let us put the

\* In his reply to the questions of "T. C. Hoosier" says in GAZETTE, October 26: "Now if there is anything an engineer should never simply assume, it is the point of curve on location, unless he desires to flitter away time and receive high wages therefor." O consistent "Hoosier"!

† A chord does not intercept an arc. A chord subtends an arc. The 12½ feet should be measured on the chord—not on the arc. On curves, measurements are made on the chords that subtend the arcs, not on the arcs themselves.

transit aside and trouble no further about long sights, chords, right angles, tangents, etc. Take two correct tape lines (if the young engineer is too young to the work with one), measure the equal lines o k and d k, and establish the point k. The line o k is on a radius of the curve, and is the line of the base of the first bent, and so on of the others.

D. T.

### The Chasing Trains.

LOUISVILLE, Ky., November 9, 1872.

TO THE EDITOR OF THE RAILROAD GAZETTE:

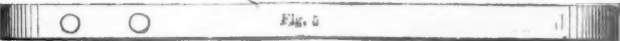
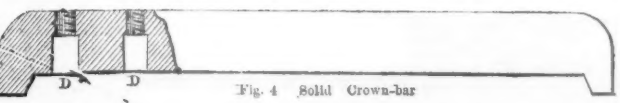
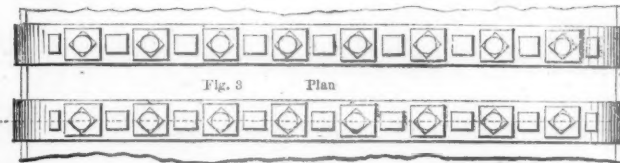
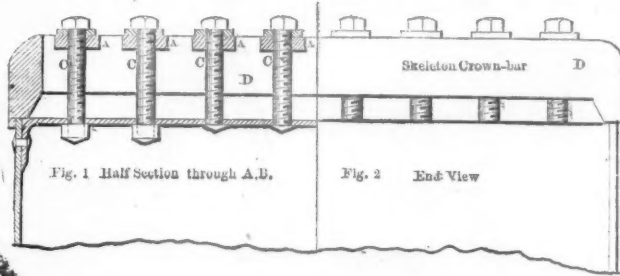
I have just noticed in your issue of October 12th your railroad problem, to which, as I have noticed no answer, I send the following: It is evident that it will be just 5 minutes and 50 seconds before both are under full headway. In this time the freight engine has run in the first 40 seconds ⅓ of a mile; in the next 5 minutes and 10 seconds, 3½ miles; total 3⅔ miles. The passenger engine has run in the 50 seconds ⅓ of a mile, so that freight engine is 3⅔ miles ahead. This is gained by passenger engine in 19 minutes and 55 seconds, making the total distance run by each engine 16½ miles. Freight engine 25½ minutes; passenger engine, 20½ minutes. Proof: Freight engine runs in first 40 seconds ⅓ of a mile; in remaining 25 minutes and 5 seconds 16½ miles. Total 16½ miles. The passenger engine runs in first 50 seconds ⅓ of a mile; in remaining 19 minutes and 55 seconds, 16½ miles. Total, 16½ miles.

G. C. B.

### Improvement in Steam Boiler Furnace Crown-Bars.

For the engraving and following description of this invention we are indebted to the National Car-Builder:

When the ordinary skeleton or double crown-bar, D D, is used in connection with the improvement, the sides are con-



nected by pieces of iron or steel, A A, about two inches square and seven-eighths of an inch in thickness—this size, however, to be varied as circumstances may require. These pieces of iron or steel are located between the inner sides of the crown-bar, about one and a half inches apart, and firmly attached to the inner sides by welding or otherwise, and extending through the length of the bars. In the center of these iron or steel connections are vertical screw-threaded perforations, about seven-eighths of an inch in diameter, and, like corresponding perforations through the crown-plate, screw-threaded. These perforations are for the purpose of receiving a headed screw-bolt, threaded its entire length, passing through the crown-bar into the crown-plate, by which they are firmly connected together, as represented in Figure 1 of the drawing, C C C C. These connecting bolts, at their upper ends, are properly headed, and rest upon square pieces of iron, through which they pass, as seen in Figure 1, C C C C. The lower ends of these bolts are screwed through the crown-plate and extend into the fire-box sufficiently to receive nuts on their lower ends, which are to be firmly screwed up to the plate; or the bolts may be riveted in the ordinary way to the plate.

When the crown-bars are not constructed as above described, but of one solid piece of iron, the perforations are counter-bored from the bottom of the crown-bar upward to seven-eighths of an inch from the upper side. The space in the perforations, from the upper side of the crown-bar to the counter-boring, has the spiral groove, as above described, in relation to the hollow crown-bars, and for the same purpose, as seen in the shaded section of Figure 4 of the drawing D D. The proper adjusting of the screw-bolts and their positions in the crown-bars and through the crown-plate, and their mode of fastening to the crown-plate in the fire-box, are substantially as above described.

The old way of staying crown-sheet is by riveting the crown-bars to it. Washers 1½ by 2½ are placed between, and bolts are dropped through the bars, washers and sheet, and riveted underneath, the heads of the rivets being all there is to hold the sheet. About 100 bolts and washers are required in staying the crown-sheet of an ordinary locomotive. The area of sheet covered by the washers is 2½ square feet, from which should be deducted the area of the bolts, showing that 2½ square feet of sheet is not touched by the water and is exposed to the greatest heat of the furnace. Mud and scale soon fill up the small space between the washers, and the result is that the sheet cracks from the bolts out, as all master mechanics are aware.

In this improvement, the bolts C C are screwed into both crown-bars and plate for the purpose of avoiding washers. The double crown-bars D D, connected by the parts A A, are provided with screw-threaded perforations in combination with the bolts C C and crown-plate. Water comes in contact with the plate where it is most needed, and where it has hitherto been covered by the washers. The improved crown-plate will sustain two-thirds more pressure than the old style; danger of explosion is avoided; scale cannot form, and water has a free circulation on the sheet. Engines make steam much better, fuel is saved, and engineers have less trouble in carrying water, and these crown-bars are put on much cheaper than the old method.

Further information may be procured by addressing: L. H. Waugh, Superintendent of Machinery of Kansas Pacific Railroad, Wyandotte, Kansas, who is one of the proprietors and patentees.

### Indian Gauge.

The report of Lieutenant-Colonel J. P. Kennedy, consulting engineer to the directors of the Bombay, Baroda & Central Indian Railway Company, on the question of gauge, states that two or three professional advisers of the Local Government of India, without a shadow of sound grounds for their advice, had induced the Government to break the present admirable 5½ ft. gauge down to one of 3 ft. 3½ in., for future extensions. The existing gauge was fixed under Lord Dalhousie's administration, after a most careful consideration of the relative bulk and weight of each of the characteristic classes of Indian produce which must be conveyed along the lines of railway. From the record of two years' traffic carried over the Bombay, Baroda & Central Indian Railway, in 1870 and 1871, consisting of 43 classes of goods, of each of which the proximate specific gravity was given, they found the range to be, for Indian produce from 224 cubic feet of bulk per ton of weight to five cubic feet of bulk per ton of weight; and that the averages of the two years' traffic were 75 cubic feet per ton in 1870, and 78 cubic feet per ton in 1871, which, making a slight allowance for waste in wagon stowage, might be taken at a general average of 80 cubic feet per ton. This would give an average space of 640 cubic feet for the stowage of eight tons in the ordinary wagon on the 5½ ft. gauge, the height of the load above the platform not exceeding 5 ft., and the center of gravity of the gross load not exceeding 5 ft. above the rails.

He admitted the fitness of a narrow-gauge wagon in a Welsh mining district, running with its eight-ton load of minerals down an incline to the nearest port or to a station on the general railway line, each ton measuring from 5 to 12 cubic feet, and the entire load being contained within a 100 cubic feet of wagon space. But how were they to pack their eight-ton load of half-pressed Indian cotton, measuring 1,488 cubic feet, or eight tons of Australian wool, measuring 1,120 cubic feet? Were they to build it up to 20 ft. or 30 ft. high on a little wagon having only two or three feet transversely between the wheels, and, therefore, only one-half of its proper stability? The plea of economy had been advanced as the motive for making the proposed disastrous change. While the 3½ ft. gauge might answer for the carriage of heavy minerals in special districts, the general commerce of every populous country mainly consisted of articles of low or medium specific gravity, adapted to food, clothing, fuel, etc., averaging about 80 cubic feet per ton weight, or which the 5½ ft. gauge was in every respect most suitable as regarded cost, stowage, safety, economy, the intricate elements of military defence, and the power of adopting single-track lines of railway for the accommodation of a large amount of traffic. A maximum limitation of the future cost of railway construction of from £5,000 to £7,000 per mile, exclusive of exceptionally large bridges, ought to be ample, under judicious specifications and estimates of works, with proper monthly audits, to secure that during progress they should not exceed the proportional authorized rate of cost for work actually done. Mr. Mathew, the present chief resident engineer of the company, had proved that such works could be rapidly executed within the limits above suggested. On the 3d of November, 1870, the first section of the Sabarmuttee & Wadwan single-track extension line, on the 5½ ft. gauge, was commenced, and on the 24th of May, 1871, it was opened for traffic, showing a construction period of 203 days, or 29 weeks, and at a cost of £5,500 per mile. Had a similar success attended the erection in India of this important class of works from their commencement in 1852, the funds invested would have produced from two to threefold the railway mileage at present available for the commercial intercourse of that empire, and the traffic would have paid much more than the guaranteed interest. In condemning the introduction of an unsuitable narrow gauge as being the most costly, inconvenient and dangerous principle that could be devised for general traffic, and while maintaining that their past rates of railway investment might be reduced to an average cost of £5,000 to £7,000 per mile, it was clear that the vast and rapidly increasing requirements of industry, and the development of hitherto neglected districts, called for a subsidiary principle very much lower in cost than even £5,000 per mile; and he felt confident that such a subsidiary principle was now within their reach at a cost of £500 to £1,000 per mile. They had only to construct well-graded ordinary roads, branching from judiciously selected stations on the existing trunk lines of railway, limited to a construction cost of £300 per mile. Those lines should be so carefully laid as to be suitable hereafter, when requisite, to lay down upon them rails for a 5½ ft. gauge of railway; and in the meantime, until that future necessity arose, they should be furnished with Thompson's road traction engines and trucks. Such a branch, say forty miles in extent, might be estimated as follows exclusive of bridges of the larger classes: forty miles of road, at £300 per mile, £12,000; four traction engines, £300 each, £1,200; four passenger omnibuses, £300 each, £1,200; sixteen goods trucks, £75 each, £1,200; five water tanks, £100 each, £500; five timber sheds, £100 each, £500; contingencies, 10 per cent., £1,900—making the total £20,900. This would require about £522 per mile, including the construction of road and rolling-stock, or about one-twelfth of the cost per mile of a fruitless narrow-gauge line, without any of its errors or dangers, and capable of receiving the rails for a proper 5½ ft. gauge railway when the progress of each district should call for such a change, without any sacrifice of the cost of the original works executed, and giving the opportunity of moving the road traction engines and their trains to fresh districts, with their full powers of fostering fresh industry elsewhere. He further stated that the principles here recommended might be most advantageously combined with irrigation, both in the plains and hill districts. The outside embankment of the irrigation canal would offer a good formation level either for a railway, an ordinary road, for a traction engine and its train, or a towing-path for boat haulage either by traction engine or horse









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## Editorial Announcements.

**Correspondence.**—We cordially invite the co-operation of the railroad public in affording us the material for a thorough and worthy railroad paper. Railroad news, annual reports, notices of appointments, resignations, etc., and information concerning improvements will be gratefully received. We make it our business to inform the public concerning the progress of new lines, and are always glad to receive news of them.

**Inventions.**—No charge is made for publishing descriptions of what we consider important and interesting improvements in railroad machinery, rolling stock, etc.; but when engravings are necessary the inventor must supply them.

**Articles.**—We desire articles relating to railroads, and, if acceptable, will pay liberally for them. Articles concerning railroad management, engineering, rolling stock and machinery, by men practically acquainted with these subjects, are especially desired.

**Advertisements.**—We wish it distinctly understood that we will entertain no proposition to publish anything in this journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN OPINIONS, and those only, and in our news columns present only such matter as we consider interesting and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes, etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.

## LOCOMOTIVE IMPROVEMENT.

It is probable that more thought has been expended in improving and perfecting the locomotive engine than on any other one machine. Every part of it has been the subject of numberless patents, devices and inventions. Quite curiously, too, hardly any of the patented inventions are now used. If all the devices which have been tried to improve locomotive boilers were described, they would fill a very large book, and the inventions which relate to the valve gear would fill several such volumes. The wheels, frames, cylinders, pistons, cross-heads, guides, connecting-rods, pumps, exhaust pipes, grates, ash-pans, trucks, smoke-stacks, head-lights, cow-catchers, oil-cups, safety-valves, whistles, gauge-cocks, steam-gauges, and, in fact, every part of the locomotive, have been the subject of much very careful thought and examination, and it seems as if invention was exhausted in devising improvements for all those parts. Now, what is very remarkable is, that with the exception of the steam blast and the link motion, there have been no improvements which have wrought any radical change either in the operation or economy of locomotives. The improvements made since Stephenson's time have all been either in proportion, workmanship or material. In all of them there have been very great changes, resulting in much greater economy and efficiency. That there is room for still greater economy in other directions is indicated by the fact that ordinarily so small a proportion of the weight of locomotives is utilized for adhesion, and by the fuel consumption under favorable circumstances of the best built and proportioned engines in use. What have been called "American engines," that is, locomotives with four coupled driving wheels and a four-wheeled truck, utilize for adhesion less than half the average weight of the engine and tender; and in trial trips, under good management, care and conditions, the best proportioned and constructed engines will consume less than half the average amount of fuel used by locomotives in doing the same work. This indicates that there is a field for improvement open to all careful and observant engineers and mechanics, in which no brilliant invention is needed, but only an exercise of sound common sense.

There is, however, another field of improvement indi-

cated by marine and "portable" engine practice which can hardly be said to come under the head of either invention or of common sense. We refer to the improvements which have been the result of a more scientific use of steam, and a more thorough knowledge of the laws of thermo-dynamics. These have demanded a higher rate of piston-speed and higher steam pressure, from which compound cylinders followed as a natural sequence for all large engines, steam jacketing and a less wasteful form of steam ports and passages, still better adaptation of the valve gear for admitting and releasing the steam to and from the cylinders—as the advancement in the knowledge of its properties indicated their advantage—and, withal, better proportioned furnaces, grates and boilers, and thorough protection from radiation, and other similar improvements. The result of the application of all this knowledge to the construction of marine and portable engines has been a reduction of from 40 to 50 per cent. in their consumption of fuel.

This seems to indicate that there is a field for similar improvement in locomotive engineering. It must, however, be remembered that to a very great extent the advantages resulting from a high rate of piston speed and a high pressure of steam have already been realized in locomotive engines by the necessity of employing them for other reasons than economical ones. That a careful investigation, with the light which science has recently shed on the subject, might result in very important economy in the use of steam in locomotives, seems quite probable. Many of the reasons which recommend compound engines for marine purposes, however, do not apply to their use as locomotives, and therefore it is doubtful whether as large a percentage of economy could be realized in locomotive practice by the application of the principles which were followed by such excellent results with engines of the other classes mentioned.

If, however, we consider the duty which is required of a locomotive engine boiler, the conditions of its working, and the dependence of the steam-consuming parts of the machine to the supply which the boiler furnishes, we shall see that locomotives are still very deficient in steam-producing capacity. It is quite true that if 10 per cent. of steam is saved by a more economical application of that which is used, either the production and the work done by the boiler may be reduced in the same proportion, or 10 per cent. more adhesion may be utilized. The most promising field of improvement in locomotive engines, therefore, seems to be in the steam-producing capacity of their boilers. As their size is chiefly limited by their weight, the problem offered for solution is the construction of a boiler of less weight and greater and more economical steaming capacity.

At the present time there are only three plans of locomotive boilers in use in this country which differ materially from the ordinary type. These are Jauriet's, Buchanan's, and Weston's, all of which consist of improvements in the fire-box alone. For each of these a very great advantage is claimed by the inventors, but no accurate experiments have been made by disinterested parties to test their relative merits. The object aimed at in each of them is to produce a more perfect combustion, which of course indirectly increases the steam-generating capacity of the boilers. In England, Messrs. Davey, Paxman & Co. have built a number of portable engines in which they have introduced what are called the "Paxman tubes" into the fire-box of an ordinary portable boiler of the locomotive type. These tubes are connected to the crown-sheets and to the sides of the fire-box, and increase its heating surface very materially. At the same time they promote circulation in the water spaces and over the crown-sheets, and serve to break up and mix the gases on their way to the tubes. We regard this invention as one of the most promising of improvement in the capacity of locomotive boilers now before the public. We have not learned that it has yet been applied to locomotive boilers.

A great deal of attention has also been directed recently to methods of construction which would permit of a greater width of fire-box on ordinary engines. The necessities of the narrow gauge has compelled attention to this point. Undoubtedly this is an advantage possessed by Mr. Fairlie's plan of engine, and available either with his single or double-boiler engines. That an increase in the width of the fire-boxes would give a greater steam-generating capacity to the boilers, without any corresponding increase of weight, there can be no doubt, and a combination of the Paxman tubes with a wide fire-box seems to promise more efficiency than any other arrangement now before the public.

Were it not that provision must be made for the gradual but certain loss of strength from corrosion in boilers, it would be possible to reduce their weight materially, but there is no doubt that there has not been sufficient attention given to economizing weight in their construction. That this weight might be reduced somewhat by adopting a more skillful design is, we think, certain;

and that there is great room for improvement in their principles of construction, seems equally so.

We doubt, however, whether the greatest practicable economy in the use of fuel in locomotives will ever be realized until some plan of operating them by contract is devised which will fully protect both the operative and the railroad company. At the present time, the value of the fuel consumed on the railroads of the country will amount to many millions of dollars annually. That a very large percentage of this expense could be saved is certain. The loss resulting therefrom is so much wealth absolutely destroyed annually. No one is benefited thereby, and the community is impoverished to just that extent. If, however, it were possible to make an arrangement with locomotive runners, whereby they would be the gainers, to a certain extent at least, by any saving they could effect, they would at once be led to exert every faculty to reduce the consumption of fuel. If there was any secret veiled within the laws of thermo-dynamics, or the obscurities of valve-gear, by the knowledge of which any economy of fuel could be effected, each one of these men would at once become vigilant students of or inquirers after it. At present they are indifferent. If, by the exercise of such knowledge, they could increase in wealth, the advantage would not be theirs alone, but would be a benefit to the whole community. Considering that the experiment of such a contract system can be made on any road to a limited extent, even with a single engine, it seems that it might be tried without risk to railroad companies, and that by carefully watching its operation a system could be devised which would protect both the parties interested.

Recent European wars have demonstrated that the people who are the most intelligent and educated make the best soldiers, and that a nation, to be successful in war, must give its soldiers a preliminary training in the school-room, as well as in military tactics. It may be that an equally conclusive demonstration will soon be made that railroad's to be economically operated must employ men who are accustomed to the use of books, as well as to handling a shovel or oil-can.

## The Vienna Exhibition.

An indication of the advantage which might accrue to this country by being fully represented at this exhibition has just appeared in the columns of the *New York Times*, of November 14, in the form of an advertisement from the Royal Chief Engineer of the Upper Silesian Railroad for proposals for seventy locomotives and ten locomotive tenders. These proposals were to be submitted and opened at Breslau on the 15th of November, but it is stated that proposals which arrive later will be considered. The Baldwin Locomotive Works have a contract for engines for a Russian railroad and for another in Finland, which indicates that it is possible to supply Eastern Europe with railroad machinery from this country. When we consider the location of Vienna, half-way between the advanced civilization of Western Europe, the Russian empire and Eastern Asia, we can see that a representation of American productions and industry at the coming exhibition would make our resources known in a portion of the world where they are now little known. The prosperity of the past few years has led many to suppose that it is not necessary to go beyond our own borders to seek for trade and business. There are, however, indications that the past happy conditions are likely to change, to some extent at least, and that our corn and potatoes must be condensed into more valuable products, if we want to export them all with profit to ourselves.

With the advance of civilization on the continent of Asia westward from the Pacific coast of our own country and eastward from Europe, it is hard to foresee the direction commerce will take. Egypt, India, Japan, Australia and New Zealand are all building railroads; the Sultan of Turkey has been a large purchaser of war material in this country, so that there is good reason for believing that we may, if we choose, now gain a large portion of the business of supplying railroad material to all parts of the world, if we only have the enterprise to avail ourselves of the opportunities offered.

We have already called attention to the fact that the Vienna Exhibition will be attended by people from all nations, and that instead of being a mere local show, it will be one of those significant events which have been so remarkable in our modern civilization. The advantage which will accrue to exhibitors will therefore be world-wide and not local only.

There is also another view which we feel quite sure our public-spirited manufacturers in the country will take, which is quite independent of their own individual profit and advantage. They, in virtue of their position and the pecuniary power they wield, are representative not only of themselves, but of the people they employ. They are in fact industrial sovereigns, whose subjects are



the people they employ. Therefore, although it may not be clear that they individually may be peculiarly benefited, nevertheless, as they represent the interests of the working men of the land, it becomes them to exercise a liberal public spirit, and by their united efforts do what they can for the general advantage.

It is especially important, we think, that our manner of building and operating railroads should be completely and thoroughly exhibited at Vienna. There is danger that only or chiefly the absurd show and glitter will be represented. We already hear of upholsterers and painters at work. All such may be assured that in such work our French and German competitors will excel us, and that our work is likely to excite derision. We therefore trust that the upholsterers' needles will be broken and the painters' colors be spilled, and that only those who have good, honest and genuine work to exhibit will send it there. As artists, we as a nation do not excel; but as constructors of railroads through wildernesses we have beaten the world. Let us endeavor to show at Vienna how it was done.

#### Railroad Earnings.

We give below tables showing the earnings of twenty-two railroads during the month of October and of twenty during the ten months ending with that month. The Atlantic & Pacific, which has been reporting comparative earnings for several months past, this month gives only the earnings for this year; and the Union Pacific reports usually some weeks later, giving then, however, reports of expenses as well as earnings, and thus indicating very satisfactorily the prosperity of the property.

The report covers about one-fifth of the mileage now worked in the United States. The month makes an excellent showing, it being, indeed, usually one of the best in the year for traffic, and the earnings per mile for October are 10½ per cent. greater than for the same month last year, and 28 per cent. more than the average per month for this year. We believe there has been as yet no month so favorable. Only one railroad shows a decrease in gross earnings, and only four in earnings per mile. Something of this, doubtless, is owing to the higher rates, though these affect only three or four of the roads to any considerable extent; and the two Chicago roads find it easy to show an increase because they have the month of the great fire to compare with; but the chief cause of the large earnings is the heavy traffic. The roads are fairly at work carrying the season's crops, and the bulk of these, coupled with the fact, in the case of some roads, that the lake marine has been largely diverted to other traffic, has given and is giving a large and profitable traffic to most of the old established railroads.

The large increases in earnings per mile are the Central Pacific, more than 20 per cent.; Illinois Central, 15 per cent.; Indianapolis, Bloomington & Western, 43 per cent.; Kansas Pacific, 13 per cent.; Lake Shore & Michigan Southern, 23 per cent.; Marietta & Cincinnati, 20 per cent.; Missouri, Kansas & Texas, 77 per cent.; Ohio & Mississippi, 25 per cent.; St. Louis, Alton & Terre Haute, 16 per cent.; St. Louis, Kansas City & Northern 17 per cent.; Toledo, Peoria & Warsaw, 16 per cent.

Passing to the report for the ten months (which includes all these reporting for October except the Ohio & Mississippi and the Michigan Central) it will be seen that the twenty companies reporting have worked an average of 11,679 miles of road, which is about 900 miles more than last year. The earnings of these roads have increased by nearly ten millions, which is about 12½ per cent. more than last year, and the earnings per mile are \$7,754 against \$7,490 last year—an increase of 3½ per cent. These are very good earnings indeed, indicating a return for the year of about \$9,000 per mile, which would, doubtless, be sufficient to pay average 8 per cent. dividends on the gross cost of the roads. The Erie and the Lake Shore & Michigan Southern are the only lines showing earnings of more than \$10,000 per mile. Next in order come the Central Pacific, the Cleveland, Columbus, Cincinnati & Indianapolis, the St. Louis & Iron Mountain, the Toledo, Wabash & Western, and the Atlantic & Great Western.

Only three roads show a decrease in earnings for the ten months, and of these the Chicago & Alton is but 1½ per cent. lower, and the Illinois Central 5½ per cent. In earnings per mile there are two other roads—the Milwaukee & St. Paul and the Pacific & Missouri—showing a decrease. The largest increases are those of the Indianapolis, Bloomington & Western, the Burlington, Cedar Rapids & Minnesota, and the Missouri, Kansas & Texas—new roads—the last two of which have, nevertheless, the smallest earnings per mile of the twenty roads reporting. Roads with large earnings which still show a large increase are the Central Pacific, the Lake Shore & Michigan Southern, and the St. Louis & Iron Mountain.

#### RAILROAD EARNINGS, MONTH OF OCTOBER.

NAME OF ROAD.	Mileage.		Increase.		Earnings.		Increase.	Decrease.	Per cent.	Earnings per Mile.	
	1872.	1871.	Miles.	P. c.	1872.	1871.				1872.	1871.
Atlantic & Great Western.....	539	506	33	6½	\$547,928	\$397,935	\$149,993		37½	\$1,017	\$786
Burl., Cedar Rapids & Minn.....	261	139	122	87½	126,967	73,602	53,365		72½	487	454
Central Pacific.....	1,166	1,013	153	15½	1,375,425	981,005	394,420		40½	1,179	968
Chicago & Alton.....	650	511	139	27½	543,578	473,277	70,301		14½	836	936
Cleve., Col., Cin. & Indianapolis.....	470	390	80	20	438,598	391,746	46,852		9½	912	1,003
Erie.....	971	956	15	1½	1,743,753	1,694,651	49,101		2½	1,796	1,773
Hannibal & St. Joseph.....	277	277			331,835	301,913	29,922		10½	337	1,090
Illinois Central.....	1,109	1,109			863,746	753,185	110,561		14½	779	679
Indianap., Bloomington & West'n.....	212	212			137,634	96,350	41,284		42½	649	454
Kansas Pacific.....	672	672			442,823	393,500	49,323		12½	654	584
Lake Shore & Michigan Southern.....	1,096	1,038	58	5½	1,834,882	1,402,597	432,285		30½	1,665	1,251
Milwaukee & St. Paul.....	1,121	1,018	103	10½	950,945	841,150	109,795		13	848	826
Marietta & Cincinnati.....	284	284			308,977	175,488	133,489		75½	736	618
Missouri, Kansas & Texas.....	572	476	96	20½	233,000	109,191	123,809		111½	406	229
Ohio & Mississippi.....	715	715			786,353	582,804	203,549		35	1,099	818
Pacific, of Missouri.....	471	335	136	39½	445,187	355,187	90,000		25½	944	904
St. Louis, Alton & Terre Haute.....	266	266			334,194	370,654	36,460		3½	816	1,044
St. Louis & Iron Mountain.....	254	254			316,680	188,455	128,225		68½	815	701
St. Louis, Kansas City & Northern.....	583	583			213,325	175,792	37,533		21½	840	785
Toledo, Peoria & Warsaw.....	237	237			372,589	318,509	54,080		17	639	546
Toledo, Wabash & Western.....	628	628			115,139	94,907	20,232		21½	486	418
Total.....	12,947	12,015	932	7½	\$12,818,987	\$10,768,650	\$2,151,314		19	\$990	\$896
Total increase.....							\$2,045,287				

#### RAILROAD EARNINGS, TEN MONTHS ENDING OCTOBER 31.

NAME OF ROAD.	Mileage.		Increase.		Earnings.		Increase.	Decrease.	Per cent.	Earnings per Mile.				
	1872.	1871.	Miles.	P. c.	1872.	1871.				1872.	1871.	Inc.	Dec.	P. c.
Atlantic & Great Western.....	539	506	33	6½	\$4,255,238	\$3,737,310	\$517,928		13½	\$7,895	\$7,888	\$509		6½
Burlington, Cedar Rapids & Minn.....	261	139	122	87½	812,551	266,452	546,109		205	3,114	1,676	1,438		85½
Central Pacific.....	1,166	996	170	17	10,679,853	7,897,480	2,782,373		35½	9,159	7,929	1,230		15½
Chicago & Alton.....	650	511	139	27½	4,375,170	4,433,809	\$58,632		1¼	7,057	8,677		\$1,620	18½
Cleveland, Col., Cin. & Indianapolis.....	470	390	80	20	3,705,191	3,180,041	525,150		16½	8,780	8,134	646		7½
Erie.....	971	956	15	1½	15,249,060	14,497,663	751,397		5½	18,704	15,165	3,539		23½
Hannibal & St. Joseph.....	277	277			1,903,608	2,474,901	571,293		22	6,872	8,335		2,063	23
Illinois Central.....	1,109	1,109			6,601,129	6,957,577	356,448		5½	5,952	6,274		323	5½
Indianap., Bloomington & West'n.....	212	212			1,135,448	776,241	359,207		46½	5,350	3,662	1,688		46½
Kansas Pacific.....	672	672			3,110,596	2,806,399	304,197		10½	4,629	4,176	453		10½
Lake Shore & Michigan Southern.....	1,096	1,038	58	5½	14,499,744	12,317,374	2,182,370		18½	13,250	11,770	1,480		12½
Milwaukee & St. Paul.....	1,121	1,018	103	10½	5,741,146	5,674,774	66,372		3	5,122	5,244		353	6½
Marietta & Cincinnati.....	284	284			1,617,830	1,345,327	272,503		20	5,697	4,747	950		20
Missouri, Kansas & Texas.....	572	476	96	20½	1,459,901	774,161	685,740		82½	2,818	2,016	802		39½
Pacific, of Missouri.....	471	335	136	39½	2,975,799	2,983,817	41,982		1½	6,318	6,264		1,846	23½
St. Louis, Alton & Terre Haute.....	266	266			1,608,057	1,560,830	47,227		3	6,045	5,868	177		3
St. Louis & Iron Mountain.....	254	254			1,841,857	1,391,734	450,123		32½	8,150	6,364	1,786		28½
St. Louis, Kansas City & Northern.....	583	583			2,923,508	2,383,295	539,213		22½	5,015	3,986	1,029		25½
Toledo, Peoria & Warsaw.....	237	237			1,076,350	872,312	203,937		23½	4,541	3,843	698		18½
Toledo, Wabash & Western.....	628	628			4,986,741	4,688,645	298,096		6½	7,941	7,466	475		6½
Total.....	11,679	10,782	897	8½	\$90,558,761	\$80,641,600	\$9,917,161		12½	\$7,754	\$7,490	\$264		3½
Total increase.....							\$9,917,161							

With this table we give the percentages of increase and decrease per mile, which we commend to the attention of all interested.

The increase of 3½ per cent. in earnings per mile is on the whole very satisfactory; for the roads reporting, as we see, are working a large amount of new line, which almost always reduces the average earnings per mile. The promise, not only for the rest of the year but for the coming winter and spring, is very good. There is doubtless an unusually large grain and hog crop to move, and the mineral traffic is unusually large. The cotton crop of the year is considerably larger than that of last year, and this will affect the Southern railroads, but hardly more than two of those whose reports are given.

#### The Mansfield Machine Works.

This establishment is situated in Mansfield, Ohio, which is the point of intersection of the Pittsburgh, Fort Wayne & Chicago, Atlantic & Great Western and the Lake Erie Division of the Baltimore & Ohio railroads. The shops are connected with all these lines by tracks running into the grounds, so that the company has excellent facilities for shipping its work in every direction. Being located in the center of one of the best hard-lumber regions of the West, and near to coal mines, and iron mills and furnaces, it has unsurpassed facilities for manufacturing cars of the best quality and at the lowest prices.

The shops are three stories high, built of brick, with either metal or slate roofs. The moulding floor in the foundry covers 12,750 square feet, or 75x170 feet. The foundry has three cupolas, with a capacity for melting eighty tons of metal per day. The blacksmith shop has twenty-two forges, two heavy punching and shearing machines, and one of Lewis, Oliver & Phillips' bolt machines, capable of making four thousand bolts per day of ten hours. The machine shop is 150x50 feet, and is supplied with excellent tools, lathes, planers, shaping machines, drill and wheel-presses, etc. The wheel-press was built by the New York Steam Engine Company, and is a double-pump hydrostatic press, capable of exerting a pressure of 150 tons. The axle lathes and wheel borer were built by Bement, of Philadelphia. The shafting hangers and pulleys all through the works were made by William Sellers & Co., who have made a specialty of such work. The power is supplied by two stationary engines, one built by the Putnam Machine Company, of Fitchburg, Mass., and the other in the shops which we are describing. Two of the main buildings have steam elevators for hoisting different parts of cars.

The wood-working machinery is quite equal in quality to the other tools, and consists of one of Fay's large planers for planing car sills on four sides at one time, a smaller one for dressing flooring, roofing, sheathing, etc., one mortising machine; and a "universal shaper," of which we have received a photograph and expect to publish an engraving soon, and therefore reserve our description until that time. This machine is manufactured by the Mansfield Machine Works, which has already supplied many shops with them. The wood shops are also sup-

plied with a full equipment of "rip" and "cut-off" saws, boring machines, and all the other requisite tools.

This company employs about 250 men. It commenced work on cars in May of last year, and has built since then 200 box grain cars for the Baltimore and Ohio Railroad, 130 coal and 100 gondola cars for the United States Rolling Stock Company, 50 hopper coal cars for Brown, Bonnell & Co., 50 stock cars for the Pittsburgh, Fort Wayne & Chicago Railway, 50 grain cars for the Peru & Indianapolis road, and is now at work on 200 box grain cars for the Erie road.

The order for the cars for the United States Rolling Stock Company was contracted to be filled on the first of October. On the thirtieth of September the last of them were turned out of the shop. The order for the Baltimore & Ohio Railroad was filled with equal promptness.

The officers are Mr. H. Colby, President; E. Sturges, Sr., Treasurer; E. H. Rees, Superintendent; A. L. Grimes Secretary.

#### Record of Track Increase.

This number of the RAILROAD GAZETTE gives information of the construction of new railroad track as follows:

Denver & Rio Grande—Arkansas Valley Branch (narrow gauge), completed from Pueblo westward 38 miles and opened November 1. Paducah & Memphis, extended from Troy, Tenn., southwestward 5 miles. New York & Onondaga Midland—Norwich & Auburn Branch, extended from Cortland westward 20 miles to Venice Centre, N. Y. Houston & Texas Central, extended northward 13 miles to Wilson's Creek, Texas. Sabula, Achley & Dakota, extended from Viroqua westward 15 miles to Marion, Iowa. Chicago & Pacific, track laid from the North Branch of the Chicago River in Chicago, west by north 9 miles to the Des Plaines River. Long Island—Northport Branch, extended from Northport eastward 17 miles to Port Jefferson, L. I. Milwaukee & Northern, extended from Chilton northward to Menasha, Wis., about 25 miles.

This is a total of 142 miles of new railroad.

THE BRUNSWICK & ALBANY RAILROAD is advertised for sale by commissioners appointed by a decree of the Supreme Court of Glynn County, Ga., at the instance of the late Governor of Georgia, Lyon, Mcendon & Co., M. L. Atkins & Co. and others, in a suit against the railroad company. The commissioners will offer for sale on the 7th of January next, at Brunswick, Ga., the entire road and rolling stock, etc., consisting of 170 miles of road between Brunswick and Albany, Ga., and 50 miles of road-bed between Albany and the Chattahoochee River, opposite Enfield, Ala., nearly completed, with three miles of track laid.

Around Albany, the present western terminus of this road, there is perhaps the best cotton district in the United States, but the country on the line between Albany and Brunswick is for the most part barren pine woods, very little cultivated and very thinly inhabited. The entire population of the eight counties on the line, by the census of 1870, was but about 37,000, only about half the average of the State; and of the seven counties east of that in which Albany is situated the popula-



tion is but 23,000. The wealth of these counties was even smaller in proportion than their population. Four-ninths of the whole was in Dougherty County (in which Albany is situated), and the other seven had an average of less than \$700,000 each, the average of the State being more than \$2,000,000. The line is crossed by the Atlantic & Gulf about 50 miles from the seaboard, where there is little business to compete for; and the Southwestern of Georgia, coming from the north, and the Albany Division of the Atlantic & Gulf, coming from the south, touch it at Albany, both carrying to Savannah. The two latter at present do nearly all the business of Albany and vicinity, the Brunswick & Albany not being prepared for doing much business.

The proposed extension to Eufaula would have a fertile country on the line and scarcely any competition for about half the distance. The rest of the way the route is close to the line of the Eufaula Branch of the Southwestern, and through a poor country. At Eufaula connection may be made with the completed line to Montgomery, Ala., and with the Vicksburg & Brunswick Railroad, of which about 20 miles is in operation.

The funded debt of the company is \$3,630,000 of first-mortgage, 6 per cent. gold bonds, indorsed by the State of Georgia (part of which, we believe, has been repudiated as illegal), and \$2,350,000 of second-mortgage, 7 per cent. gold bonds, not indorsed, the debt on the completed section of the road being thus \$33,000 per mile. The sale, we believe, is made on foreclosure of the first mortgage.

MEXICO is wrangling over rival schemes for new railroads and candidates for subsidies from the Government. Mr. E. L. Plumb, as the agent of the International Railroad Company, of Texas, proposes to construct a line of the ft. 8 1/2 in. gauge from Mexico to the Pacific coast, and another from the Rio Grande (connecting with the International) south by west to a junction with the Pacific road at Lagos, some 200 miles northwest of Mexico. The latter line would be more than 400 miles long. The subsidy asked by him is \$9,500 per kilometre, which is about \$15,200 per mile. On the other hand, Gen. Rosecrans offers to construct a railroad of 3 ft. gauge from Mexico to the Pacific for a subsidy of \$10,000 per kilometre (about \$16,000 per mile) with a great number of branches, not extending to the United States frontier, for \$5,000 per kilometre. Mr. Plumb, it is presumable, purposes to make his line of the ordinary heavy character; and General Rosecrans, doubtless, would make his a light railroad, similar to most other narrow-gauge lines. It might be thought that Mexico would have no choice of gauges for the sake of connections, but, aside from the importance of a connection with the railroad system of the United States, which Mexico may undertake, that country's one railroad from Vera Cruz to Mexico, now nearly completed, is of the ordinary gauge, and is an exceedingly costly structure. Mexico desires to make a great port at Vera Cruz, and to do this it should facilitate as much as possible shipments over its railroad, which would be made at a disadvantage were there a break of gauge at Mexico. But probably local interests, and not the question of the gauge, are the causes of the contest between the partisans of the two schemes. The one presented by Mr. Plumb has the advantage of the support of some of the wealthiest capitalists of New York, if, as we understand, the proprietors of the International are sustaining it.

THE BRITISH RAILROADS grew shorter instead of longer during the year 1871, if we may believe the Board of Trade reports. That for 1870 gave a total mileage open at the year of 15,537, while that of 1871, just published, says that there was then but 15,376 miles. The decrease is probably due to corrections of old errors. It is noticeable that the mileage of the Kingdom is just about one-fourth of that of the United States.

#### NEW PUBLICATIONS.

*Elementary Principles of Carpentry.* By Thomas Tredgold, revised and partly rewritten by John Thomas Hurst. (London and New York: E. & F. N. Spon.)

This book, as indicated by the title, is a revision of Tredgold's original book, which, it is safe to say, was the best that has ever been written on the subject. The present edition is an inadequate attempt to bring the book up to modern practice. To do this would require that the whole work be entirely rewritten and re-illustrated. Although the attempt of Mr. Hurst has not been successful in making the book what it should be to meet the requirements of students of this subject, it is nevertheless the book which we should recommend to those seeking information on the subjects of which it treats. These are the Equality and Distribution of Forces, Resistance of Timber, Construction of Floors, Roofs, Domes, Partitions, Scaffolds, Staging, Gables, Centres of Bridges, Coffers-Dams, Shoring, Strutting, Wooden Bridges, Viaducts, Joints, Straps and other Fastenings. It also has a long chapter on the characteristics of different kinds of timber, numerous tables, and is illustrated with many wood-cuts and lithographic plates of roofs, bridges, etc.

The chapter on the Equality and Distribution of Forces is, we believe, the clearest and most easily comprehended discussion of that subject that has ever been written, and is one which every mechanic should study. Much of the science and art of carpentry will, of course, never be out of date, and this is clearly and distinctly set forth in the book before us. Its size is much smaller and more profitable than Tredgold's original editions, and will, therefore, be more useful to mechanics and working men generally.

The book brings very forcibly to mind the excellent opportunity which is offered for a work on this subject written from an American point of view. If our practice in bridge, roof and other wooden structures could be clearly and fully described, it

would be of incalculable value to engineers and mechanics the world over. Such a book still remains to be written, and the opportunity is more tempting to-day than ever before. Until some one does this, readers must be referred to the book published by the Messrs. Spon, which every carpenter who is ambitious to know his business, and to become more than a mere journeyman, should study thoroughly. The New York house of the publishers is at No. 446 Broome street. The price of the book is six dollars.

#### Dynamometers.

TO THE EDITOR OF THE RAILROAD GAZETTE:

Can you or any of your readers inform me from experience as to what description and make of dynamometer has so far been known to give the most correct results when used between locomotives and trains to indicate traction power or train resistance.

W. A. ROBINSON.

[We will be glad if those of our readers who have had any experience with the use of dynamometers will send us descriptions and drawings of the instruments they employed.—EDITOR RAILROAD GAZETTE.]

#### Report of the Evansville & Crawfordville Railroad Company.

The Evansville & Crawfordville Railroad extends from the Ohio River at Evansville, Ind. (near the southwest corner of the State), nearly due north 109 miles to Terre Haute, Ind., and thence northeast 23 miles to Rockville, Ind. The section between Terre Haute and Rockville has been leased since June last to the Logansport, Crawfordville & Southwestern Company. The annual report, of which the following is an abstract, is for the year ending August 31, 1873, and so includes the working of the Terre Haute & Rockville line for ten months of the year, and makes the average length worked during the year 128 miles.

The capital account includes \$1,004,121 of common stock, \$100,000 of preferred stock, \$977,000 of 7 per cent. bonds on the main line, and \$150,000 on the Rockville Extension—a total capital stock of \$1,104,121, and a bonded debt of \$1,127,000. The total length being 132 miles, the stock is at the rate of \$8,365 per mile; the bonded debt on the main line \$8,963 per mile, and the bonded debt on the Rockville Extension \$6,522 per mile.

This is an extremely light capital account, and, indeed, does not cover the construction and equipment accounts, which amount to \$2,879,748, or \$21,816 per mile, the income account showing \$608,495 expended in construction.

The account of receipts and expenditures is as follows:

Receipts.		
	1873.	1871.
Passenger.....	\$192,407 00	\$210,043 42
Freight.....	335,108 41	233,437 57
Express.....	15,319 26	15,418 08
Mail.....	10,308 33	10,500 00
Rents.....	13,421 30	5,870 90
Telegraph.....	215 13	
Mileage account.....		3,408 31
Total receipts.....	\$566,679 33	\$508,173 23
Increase (5 1/4 per cent.).....	\$28,506 10	
A sale of real estate added \$3,385.52 to the receipts of last year.		
Expenditures.		
	1873.	1871.
Running road.....	\$66,697 32	\$62,313 30
Maintenance of road.....	88,229 05	137,300 75
Maintenance of structures.....	15,998 55	14,741 05
Maintenance of equipment.....	67,452 91	48,555 44
General expenses.....	29,655 61	85,205 33
Total expenses.....	\$348,033 44	\$368,115 87
Interest and taxes.....	99,083 84	111,147 59
Appropriations to sinking fund.....	29,950 75	29,937 00
Total charge on revenue.....	\$477,070 03	\$509,150 46
Balance.....	\$99,609 30	\$39,022 77

The working expenses, exclusive of taxes, were thus 61.4 in 1871-72, and 68.5 per cent. in 1870-71.

The receipts were at the rate of \$4,427 the former, and \$4,077 the latter year, per mile.

During the year one locomotive, one baggage and mail car, 25 compromise box cars and 20 coal cars were added to the equipment out of revenue. The President reports the road-bed and structures all in good condition; during the year 3,000 feet of new sidings, ties renewed on 17 miles of road, 3 1/2 miles of track renewed with re-rolled rails of heavier pattern, 13,200 cubic yards of gravel ballast placed, and eight small trestle bridges filled in with earth. The passenger equipment was fitted throughout with the Miller platform, with Westinghouse brake, at a cost of more than \$10,000; extensive repairs of passenger cars were made, and there were some new construction and rebuilding and extensive repairs of freight equipment in the company's shops.

The equipment at the close of the year consisted of 17 locomotives, 10 passenger cars, 1 paymaster's car, 5 baggage, mail and express cars, 6 caboose cars, 79 local freight box cars, 71 compromise box cars, 30 platform cars, 74 coal cars, 10 stock cars, 10 construction cars, 34 hand cars and 26 push cars.

Passenger trains ran 158,696 miles during the year, which is 5,505 miles less than the previous year; freight trains, 176,629 miles, or 32,675 miles more than the previous year; construction trains, 26,190 miles, or 13,385 less than the previous year. The mileage of loaded freight cars was 1,526,719; and of empty, 681,539.

The decrease of \$17,636 in passenger receipts is attributed chiefly to the opening of the St. Louis & Southeastern Railway to Evansville, which, giving a direct line from Evansville westward, took at once nearly all the travel from Evansville to the West from the Evansville & Crawfordville.

The completion of the Evansville, Terre Haute & Chicago

Railroad, giving a direct outlet to Chicago, has had a favorable influence on freight business, and arrangements made for running sleeping cars through between Chicago and Evansville were believed to be likely to increase the passenger business over the line.

The southern connection over the Evansville, Henderson & Nashville (since consolidated with the St. Louis & Southeastern) had brought little traffic to the road, but had been a valuable outlet for grain, hay, etc., intended for Southern consumption. Arrangements had been made for transferring loaded cars from Evansville to Henderson (the ferry is about ten miles long), which will materially decrease the cost, and this with the increase of equipment on the Southern road will, it is thought, stimulate the traffic in this quarter.

An addition of four stalls to the round-house and a store-room for the Master Machinist were being built in Evansville, and a brick car-house in Terre Haute.

The sinking fund redeemed \$27,000 of the bonds during the year, making \$113,000 in all, and it held a balance for the redemption of \$5,000 more.

The lease of the Rockville Extension to the Logansport, Crawfordville & Southwestern Company is terminable in one year after notice given by either party after July 1, 1873. It is spoken of as "well guarded" and "advantageous to both the contracting parties." The terms of the lease are not given.

The directors of this company are: John Ingle, Jr., Samuel Orr, J. S. Hopkins, J. E. Martin, Evansville, Ind.; L. S. French, Patoka, Ind.; J. W. Maddox, Patoka, Ind.; J. Alsop, Carlisle, Ind.; H. K. Wilson, Sullivan, Ind.; C. Ross, W. R. McKeen, J. H. Turner, W. K. Edwards, Terre Haute, Ind.; G. K. Steele, Rockville, Ind. The officers are: John Ingle, Jr., President; J. E. Martin, Secretary and Treasurer; L. Pearson, Superintendent; C. C. Genuing, Engineer and Paymaster; A. E. Shrader, General Freight Agent; J. L. White, Master Mechanic. The general office is Evansville, Ind.

#### Steam on Canals.

The Secretary of the Chesapeake & Delaware Canal Company, Mr. Henry V. Lesley, has written to the *Nautical Gazette* the following account of the actual work of steam on that canal, where it has long been in use. It is well to observe, however, before concluding that the same may be done on the Erie, that the Chesapeake & Delaware is 66 feet wide, and 10 feet deep. It is but 12 1/2 miles long. We extract from this letter the following:

The canals, when of proper construction and capacity, can and will enter into competition with the railroad for the coarse and heavy freights, such as coal, lumber and such like. It has been said that these articles can be carried by rail at as low a figure as by canal. This may not be contradicted, so long as the present canal system is adhered to in this State and elsewhere—a capacity to pass boats of from 60 to 125 tons of freight will not answer—but when able to pass boats of from 250 to 450 tons, and over, they can then successfully compete with a road running parallel to and alongside of its own banks.

In order to see how far water communication may compete with the railroad, it would be well to look at the figures and the mode of transportation of coal between Baltimore and New York, via canal. A number of years ago steam towing was introduced on the Chesapeake & Delaware Canal. A tug of some 60 feet in length, 8 feet draft of water and 20 inch cylinders, was employed, taking a number of vessels or barges at one tow, at the rate of three miles per hour—this being very satisfactory; other tugs were then employed, until now most of the tonnage of the canal is passed through by steam power.

In 1864 it was determined to open up the coal trade between Baltimore and New York by way of the canals, using large steamers on the Chesapeake Bay and the rivers. Large, powerful steamers were placed on the route from Baltimore to Chesapeake City, the west end of the canal, and from Delaware City, the eastern end of the canal, and to Philadelphia boats of a like character; these steam tugs, in connection with those on the canal, conveying the coal tonnage 116 miles (the distance between Baltimore and Philadelphia) in regular daily tows of from 10 to 15 barges, ranging in capacity from 250 up to 450 tons each, an average tow of barges containing about 3,000 tons. A like arrangement was made for the shipment of this coal, north of Philadelphia to New York, through the Delaware & Raritan Canal. The time for the passage of the barges is about five days, and, taking in the time lost for loading and unloading, the round trip between New York City and Baltimore, will occupy about 20 days, on the average through the canal season.

Under this management of reliable and quick passage of boats, the increase of tonnage has been steadily and rapidly advancing, from 55,000 tons of coal in 1865, to 680,000 tons in 1871. This coal trade has been in successful operation for several years, and the result as to profit and loss can be readily obtained. The figures as to cost to the shipper is as follows: For one ton of coal from Baltimore to New York, 223 miles, 93 cents, which is a trifle over 4 mills per ton per mile. It is asserted that coal can be sent to a market over a long rail route at a charge of 1 cent per ton per mile to the shipper, and with a profit of 2 mills per ton per mile to the railroad company so transporting. The cars used, from their peculiar construction, must go back empty. Not so with the barges employed for carrying coal, they being able to return, as they do, many of them with full cargoes of merchandise. With the above practical result it need hardly be said, as has been frequently, that canals have served their day—are too slow—behind the times—and such like expressions. These might apply to the canals, as they now are over this State, but as transportation is now being done in barges ranging from 350 to 450 tons each, and with the short time of 5 or 6 days for a trip, it must be acknowledged that the time may—yes, will come—when the coarse freights will be sent through to a market by canal, and the light or more costly goods by rail. In order that this may be the result, the canals must have greater depth of water and larger locks, with appliances for quick passage at the locks.

It is hardly necessary to refer to the damage done to the banks by the swell produced by the barges in their passage through the canal. So long as there is displacement of water by the boat, and that boat moves through the water in a channel-way between banks, so must there be a swell or rise of the water corresponding to the displacement of said boat; in her rapid passage through, she sinks down lower in the water, and as a consequence the swell or rise on each side of the boat is greater. No ingenuity of man can alter a law of nature. The only sure plan is to have the banks carefully watched, and, when necessary, have them repaired. It is a question whether the profit to a corporation arising from the quick and off-repeated trips of a loaded boat through will not justify an increased wear and tear of banks. Though somewhat more of expense is entailed for keeping banks in order, fewer boats (or capital) are required to move the same tonnage.



## City Railroads.

There has recently been an examination before the New York Commissioners of the Sinking Fund with regard to the value of the franchise of an extension of the Second Avenue Railroad. The *Evening Post* says:

The evidence introduced on behalf of the city disclosed the following remarkable facts:

First, that when a corporation obtains a franchise for a city railroad, its managers first learn what will be the entire cost of building the road and supplying it with horses, cars, harnesses, stables, depots, and every other thing required for its business. They then estimate the worth of the franchise as a seven per cent. investment, and issue stock and bonds enough to cover the whole cost and the estimated value of the franchise. Then, in order to save themselves from paying in money on the stock, and yet in law have it full-paid stock, they agree with a contractor or contractors to build and completely equip the entire road, and take in payment therefor the whole of the stock and bonds. With this contractor an understanding is had, that on completing the road and receiving the stock and bonds he shall retain only enough to cover the actual cost at a price previously agreed on between the contracting parties, and deliver the remainder of the stock and bonds to a third person named by the company. The third party then returns this amount to the managers of the company, who divide it among the incorporators and stockholders as their bonus of profit for obtaining the franchise.

Secondly, it was proven that on eight of the leading city railroads, namely, the Second, Third, Sixth, Seventh and Eighth Avenue, the Dry Dock, East Broadway & Battery, the Forty-second street & Grand street Ferry and the Bleecker street & Fulton Ferry lines—the actual cost of everything they have, except their franchises, was less than \$7,000,000; that the gross earnings of the roads amounted to nearly \$6,000,000 a year; that their net earnings after keeping up the rolling-stock, road-bed and real estate, and paying everything that could possibly be charged to operating expenses, were \$1,190,639, being seven per cent. on more than \$17,000,000; and that these roads have issued on the actual cost of everything they have, and on the estimated value of their franchises, about \$16,000,000 worth of stock and bonds. Thus it appears, from their own estimates, that the franchises of these eight companies, obtained from the city for nothing, are worth more than \$10,000,000, and are actually paying to the corporations to-day more than seven per cent. on that sum, or, in exact figures, \$721,804 per year.

Thirdly, it was shown that these eight railroad companies, though having received from the city a gift of franchises worth more than ten million dollars, which are now paying them a net profit of more than seven hundred thousand dollars a year, besides seven per cent. on all money actually invested in building and equipping the roads, contrive, by some process best known to their officers and the Tax Commissioners, to practically escape taxation on the whole of the ten million dollars of property which they obtained from the city for nothing.

## Proposed General Railroad Law for Vermont.

There is now pending in the Vermont Legislature a bill for a general railroad law. The following condensed statement of the provisions of the bill we take from the *Rutland Herald*:

The main features of the bill are that any number of persons, not less than twenty-five, inhabitants of this State, may form a company for the construction, maintenance and operation of a railroad for public use, with the specific provision as to organization and capital, which shall not be less than ten thousand dollars per mile, constructed or proposed to be built, and after the articles are filed in the office of Secretary of State, the corporation shall be organized for business with the usual powers and restrictions granted such corporations, subject to any regulations that may be provided by law, and having all the rights, powers, franchise privileges vested in railroad corporations by chapter 28 of the General Statutes and amendments thereto.

The articles of association can be filed with the Secretary of State when five thousand dollars of stock for every mile of railway proposed to be constructed is subscribed thereto, and ten per cent. has been paid thereon in good faith, and a certificate thereof has been made by the directors that it is intended in good faith to construct and operate such railway. Such records, filed with the Secretary of State and in the County Clerk's office in the several counties through which said road is to pass, shall be received as presumptive evidence of the incorporation of the company. The directors may then proceed to open the books of subscription, to fill up the capital stock if it has not been before subscribed, giving every holder of stock one vote in person or by proxy.

In case the capital stock of any company is found insufficient for constructing and operating its railroad, it may increase its capital stock to the amount required for the purpose, by a vote of two-thirds in amount of all the stock represented, at a meeting of the stockholders called by the directors for that purpose, twenty days' notice being served on each stockholder in person or by mail, stating the time, place of meeting and its object, and the amount to which it proposes to increase its stock. A copy of the record of such meeting shall be recorded in the office of the Secretary of State. Thereupon the capital stock may be increased in accordance with the vote of the corporation. The articles of association shall be filed in the office of the Secretary of State, a certificate of the location of the line or route of the proposed railroad, within a town through which it passes, recorded in the Town Clerk's office of that town, before any proceedings can be commenced, or before any real estate can be taken for their purposes. The usual powers are given to cross, intersect, join or connect and unite its railroad with any other railroad now built, and all necessary appurtenances for such purposes; and if the two corporations cannot agree upon the amount of compensation to be made therefor, or the methods of such connections, it shall be determined by commissioners appointed by the Supreme Court, and their award, after being confirmed by the court, shall be binding upon the respective corporations, and the court shall make the necessary orders for enforcing the same.

No other railroad corporation is allowed to take any of the stock or bonds of any railroad organized under the act, unless specially authorized to do so by the Legislature. There shall not be less than five directors of any railroad corporation organized under the act, a majority of whom shall reside within the State. The corporations formed under the law must, within three years after its articles of association are filed with the Secretary of State, begin the construction of the road, and expend thereon ten per cent. on the amount of capital stock, and finish and put it in operation within seven years, or its corporate existence and powers cease—except as to so much of the road as may have been completed. The usual legislative restrictions, as in reference to amendment, repeal or dissolution, are provided.

A company has been formed to build a new rolling mill at Springfield, Ill., at the junction of the Chicago & Alton and the Toledo, Wabash & Western railroads, a short distance south of the city. The capital stock is \$350,000, of which \$300,000 has been subscribed. Ground is to be broken at once.

## General Railroad News.

## ELECTIONS AND APPOINTMENTS.

—Mr. Harry E. Sharpe, late of the Great Western Railway of Canada, has been appointed Corresponding Secretary of the Western and Southern Railway Association, with office at St. Louis, who, according to the terms of the resolution authorizing the appointment, is "to collect information and statistics for the use of the Association, to attend all the sessions, and during the recesses of the same to become a medium of communication," etc. Mr. Sharpe is a gentleman of culture and ability, who has had experience in the working of railroads in many countries, and is an earnest student of the complicated problems which managers have to solve. In his present position his services may be of very great value.

—Mr. J. E. Gimperling, late Superintendent of the Louisville, Cincinnati & Lexington Railroad, has been appointed Superintendent of the Indianapolis, Bloomington & Western Railway, in place of A. Bradley, resigned. His appointment took effect November 20.

—The stockholders of the Third Avenue Railroad Company of New York held their annual meeting November 13, and re-elected the old board of directors, as follows: Robert Squires, William Remsen, Henry B. Remsen, Henry Hart, Peter McMartin, Malby G. Lane, John B. Hobby, William J. Valentine, Silvanus S. Hiker, Sylvester R. Comstock, Henry Smith, Jonathan Thorne, James Boorman Johnston. The old officers were also re-elected by the board—Mr. Robert Squires, President, and Mr. Charles S. Arthur, Secretary.

—Mr. S. H. Scranton, heretofore the Superintendent of the Shore Line Division of the New York, New Haven & Hartford Railroad, has, it is reported, accepted the appointment as General Superintendent of the New Orleans, Mobile & Texas Railroad, at a salary of \$10,000 a year. New England has given a great many railroad officers to the South since the war.

—Gen. John Echols, the new President of the Louisville, Cincinnati & Lexington Railroad Company, is a resident of Virginia and a director of the Chesapeake & Ohio Company, which will probably have close relations with the Louisville, Cincinnati & Lexington road, connecting with it through the Lexington & Big Sandy.

—Mr. J. W. Wilbur, formerly of the Staten Island Railroad, has been appointed General Superintendent of the Paducah & Memphis Railroad, in place of Mr. George Skinner, resigned.

—Mr. N. Monsarrat, of New York, has been appointed Secretary and General Freight and Ticket Agent of the Paducah & Memphis Railroad, in place of Mr. H. L. Jones, resigned.

—The stockholders of the Logansport, Crawfordsville & Southwestern Railway Company at their annual meeting at Crawfordsville, Ind., November 6, chose the following board of directors: W. P. Cutler and E. R. Dawes, Marietta, O.; E. C. Dawes, Cincinnati; F. W. Jones and S. D. Schuyler, New York; John Lee and I. C. Elston, Crawfordsville, Ind.; W. H. Nye, Rockville, Ind.; E. T. Morrison, Frankfort, Ind.; A. E. Taylor, R. H. Fleming, J. E. McGettigan and John Byrne. The board of directors subsequently elected the following officers to serve for the ensuing year: W. P. Cutler, President; John Lee, Vice-President; I. C. Elston, Treasurer; J. H. Paris, Secretary; E. C. Dawes, Superintendent. Mr. W. P. Cutler as President succeeds John Lee, who becomes Vice-President, and Mr. I. C. Elston takes the place of J. S. Bailey as Treasurer. The new directors are Messrs. Schuyler, Taylor, Fleming, McGettigan and Byrne, who take the places in the board of Messrs. Stone, Dykeman, Bailey, Creveling and McFarland.

—The stockholders of the Columbus & Toledo Railroad Company met at Columbus, O., November 15, and organized by electing the following directors: Wm. Dennison, Benjamin E. Smith, M. M. Greene, Wm. G. Deshler, H. J. Jewett and D. S. Gray, of Columbus; Samuel M. Young and Horace S. Walbridge, of Toledo. The directors afterward met and organized by electing M. M. Greene President, and James A. Wilcox Secretary and Treasurer, and appointing the following committees: Executive Committee—The President, Benjamin E. Smith, Wm. Dennison, William G. Deshler, H. J. Jewett; Committee on Accounts—David S. Gray and William G. Deshler. Mr. Greene is Vice-President, Mr. Smith President, and Mr. Deshler a director of the Columbus & Hocking Valley Company; and Messrs. Jewett and Gray are directors of the Central Ohio Company.

—Mr. William H. Wentworth, who was lately connected with the Texas & Pacific Railway, has been appointed Chief Engineer of the Dallas & Wichita Railroad.

—At the annual meeting of the stockholders of the Baltimore & Ohio Railroad Company, at Camden Station, Baltimore, November 18, the following directors were unanimously elected, to serve for the ensuing year: John S. Hopkins, Samuel W. Smith, John Spear Nichols, John Gregg, C. Oliver O'Donnell, James Harvey, Galloway Cheston, Wm. W. Taylor, Samuel Kirby, Francis Burns, John King, Jr., G. A. Von Lingen, all of Baltimore. These directors are all re-elected except G. A. Von Lingen, who takes the place of Allen A. Chapman, who has resigned.

—The City Council of Baltimore has chosen E. G. Hipaley a director of the Western Maryland Railroad Company on the part of the city of Baltimore, in place of J. Hall Pleasants, resigned.

—The stockholders of the Eastern Ohio Railroad Company met at Seneca, Ohio, November 12, and re-elected the old board of directors, as follows: Thomas Green, of Freeport; Thomas Lenfesty, of Winchester; William Lawrence, of Washington; Eleazar Thompson, of Seneca; Bennett Rosemond, of Cumberland; E. M. Stanbery and C. B. Bozman, of McConnelsville, Ohio.

—The following-named gentlemen were elected directors of the Union Ferry Company at the annual meeting in Brooklyn, November 19: Henry E. Pierrepont, Joseph A. Perry, Abiel A. Low, Edward Dodge, H. B. Worthington, Charles E. Bill, James S. T. Stranahan, Nathan B. Morse, Cyrus P. Smith, Walter N. Degraw, Horace B. Claflin, James How, Abraham B. Baylis, S. B. Chittenden, James A. Degraw.

—The Hon. Galusha A. Grow, President of the Houston & Great Northern Railroad Company of Texas, has been elected President of the International Railroad Company. The companies are largely owned by the same capitalists and the roads are managed as one property.

—Mr. E. B. Gibbs, late Master Mechanic of the Missouri Pacific Railroad, and formerly Master Mechanic of the St. Louis & Iron Mountain Railroad, has accepted a similar position on the Louisville, Cincinnati & Lexington Railroad, with headquarters at Louisville.

## TRAFFIC AND EARNINGS.

—The earnings of the St. Louis & Iron Mountain Railroad for the first week in November were: 1872, \$51,966; 1871, \$42,256; increase, \$9,710, or 23 per cent.

—The earnings of the Atlantic & Pacific Railroad for the month of October were \$116,206.05.

—The earnings of the Kansas Pacific Railway for the first week in November were: from passengers, \$22,959.70; freight, \$65,644.55; mails, \$2,055.31; total, \$90,659.56. Of this amount,

\$2,885.18 was for transportation of troops, mails and Government freight.

—The earnings of the Great Western Railway of Canada for the week ending October 25 were: 1872, \$27,321; 1871, \$22,821; increase, \$5,000, or 22 per cent.

—The earnings of the Grand Trunk Railway for the week ending October 26 were: 1872, \$41,200; 1871, \$40,800; increase, \$400, or 1 per cent.

—The receipts of the Chesapeake & Ohio Canal from tolls for the month of October were: 1872, \$55,934; 1871, \$51,161; increase, \$4,773, or 9½ per cent.

—The earnings of the Baltimore & Ohio Railroad, including branches and leased lines, for the fiscal year ending September 30, 1872, were \$13,614,896.26. The earnings for the preceding year were \$12,557,529.42; increase for last year, \$1,057,366.84, or 8½ per cent.

—The earnings of the St. Louis & Southeastern Railway (consolidated) for the first week in November were \$24,239.26.

## PERSONAL.

—Mr. Ira W. Hart, who has been ticket agent for the Lake Shore road at Erie, Pa., for 21 years past, has just resigned his position. Mr. Hart, who is 69 years of age, has held the position since the opening of the road.

—Wm. M. McPherson, one of the leading railroad men of St. Louis, died recently in that city. He had been a leading director of the Pacific of Missouri and the late North Missouri, and also of the Kansas Pacific, and was a director of the St. Louis, Kansas City & Northern and the Kansas Pacific at the time of his death.

## CHICAGO RAILROAD NEWS.

## Illinois Central.

This company having applied to the City Council of Dubuque, Iowa, for the privilege of constructing a new freight house in that place and laying the necessary side tracks, the Council responded by granting the privilege on condition that the company construct a wagon-bridge on the Dunleith and Dubuque Bridge over the Mississippi. The company has declined to accept on these terms, and the construction of the new freight house is indefinitely postponed.

## Chicago &amp; Northwestern.

The West Wisconsin road will connect with this road about the first of December. The company have been battling with immense snow drifts on the Winona & St. Peter Extension. This road is now graded to the Dakota line and will be finished to that point and in running order by about February 1.

## Chicago &amp; Alton.

The receipts of this road for the first week in November exceeded by about \$17,000 the receipts for the corresponding week last year. But the receipts for the second week are just about equal to those of last year. There has been a great falling off in the shipments of corn from the country, owing to the low price of that product and the high freights, and this accounts for the smallness of the receipts for the second week in November.

## Van Buren Street Depot.

This building is slowly progressing toward completion. Twenty-four of the twenty-six iron roof trusses are already in place, and the work of putting on the corrugated iron will commence this week. The trouble with the horses has caused some delay in the construction, and it is not now expected that it will be ready for occupation until about the first of February.

## New Roads.

The Chicago & Canada Southern and the Chicago & Illinois River roads have at length got their ordinances through the Common Council, giving them the right of way into the city. The former road is being pushed ahead as rapidly as it can be. Large gangs of men are now grading the northwestern portion of the State of Indiana.

## Lake Shore &amp; Michigan Southern.

This company has withdrawn its special hourly trains to Forty-third street, which were placed on to accommodate the people until the horse cars should commence running again, and in place of them it has established special trains to run between the city and the Union Stock Yards, to accommodate the increasing travel to that suburb. Between the hours of 6 a. m. and 11 p. m. of each day, the company will run 8 trains each way, timing the trains so that when the travel is greatest they shall be only about one hour and a half apart. The proposed construction of a crystal palace at the Union Stock Yards early next season, and the probability that a great transfer depot will soon be built there have turned attention largely towards that suburb.

## Chicago &amp; Pacific.

This company is running its construction trains to the Desplains River, and has got its line graded nearly to Elgin. The bridge is finished across the Desplains, and ten days more will see the grading completed as far as Elgin. The iron is purchased for the road to that city, and is arriving as fast as it can be laid. The depots that have been located are only the three nearest to the city. The first is Humboldt Station, at Humboldt boulevard; the next is Simons, about a mile west; and the third Montrose, about a mile and a half further. The company has constructed temporary structures for the accommodation of its engines on Goose Island. The company proposes to prosecute the work of construction west of Elgin next season with vigor. It has already received overtures from important towns located in the vicinity of the proposed route, offering to build side tracks to connect with the main line. Such offers have been received from Rockford, Sycamore, Oregon and some other places.

## THE SCRAP HEAP.

## A Great Industrial Company.

A late advertisement of the Société de John Cockerill, of Seraing, Belgium, gives some interesting statistics. It has 2,402 men, with 23 engines of an aggregate of 931 horse power, engaged in coal mines, producing annually 350,000 tons of coal; 137 men and 13 engines with an aggregate of 109 horse power engaged in making coke, who produce 80,000 tons of coke yearly; 807 men and 17 engines, of 290 horse power, engaged in mines (in Belgium, Luxembourg and Spain), raising 150,000 tons of minerals yearly; 807 men and 26 engines, of 879 horse power, engaged in furnaces, producing 55,000 tons of metal yearly; 273 men and six engines, of 44 horse power, employed in foundries, producing yearly 5,000 tons of castings; 1,238 men and 55 engines, of 1,075 horse power, employed in puddling furnaces, rolling mills and forges, producing yearly 30,000 tons of rails, and 10,000 tons of bar iron, etc.; 561 men and 32 engines, of 865 horse power, in steel works (including eight Bessemer converters), producing 17,000 tons of steel yearly; 289 men and six engines, of 50 horse power, employed in forges, and producing yearly 1,500 tons of forged iron for parts of machinery, etc.; 1,043 men and 21 engines, of 224 horse power, employed in machine shops (in which there are no less than 184 lathes, 79 planes and 44



drills), producing machinery and tools of various kinds, weighing in the aggregate 7,000 tons; 512 men and nine engines of 71 horse power employed in boiler shops, producing yearly 6,000 tons of boilers, plate bridges, etc.; 43 men and two engines of 14 horse power, in the Antwerp shipyard, producing yearly machinery and appliances for marine vessels weighing 2,500 tons; and in various services 424 men, with 12 engines of 168 horse power, being locomotives employed in its own service; while it has in Seraing 180 acres, in Antwerp 134, for its shops and their yards; owns 120 acres of mineral land, leases 235 acres of coal land, and, in Belgium and Spain, 2,750 acres of mineral land.

The Soring shops have turned out 2,040 steam engines of from 4 to 600 horse power, for all kinds of industrial uses; 890 locomotives of all sizes and systems; and 30,900 machines or important parts of machines, bridges, etc. The Antwerp yard has supplied 275 vessels for sea or river service. The company can deliver yearly 100 locomotives of the first class, 70 engines of from 4 to 1,000 horse power, or more; 1,500 machines, etc.; 6,000 tons of bridges, turn-tables, etc.; and 14 vessels of an aggregate tonnage of 5,000 tons; besides the excess of coal, ore, castings, rails, steel, etc., not consumed in its own shops.

#### Objections to Road Engines.

The following, which we take from an English exchange, indicates that some of the objections to the use of steam on street railroads are made also to the use of traction engines on common roads:

"A public meeting of householders and owners has been held in the hall of the Royal Naval School, Newcross, Mr. A. Eames in the chair, to consider the best means of putting a stop to the nightly passage through the main thoroughfares of Eltham, Lee, Lewisham, Newcross and Camberwell of a traction engine, with wagons, belonging to a company engaged in conveying farm and garden produce, manure and other material between certain country districts and London. The engine is complained of as causing a frightful noise and vibration, annoying to the inhabitants and destructive to property on the route. The district boards of Plumstead and Greenwich have been petitioned on the subject, but for months past nothing has been done, the clerk of the former body giving it as his opinion that the company could not be interfered with for running their engines at night, and that they must be proceeded against civilly for any damage caused. One of the speakers said he was kept awake from 12 till 3 every morning by the horrible noise of the engine, which could be heard a mile away, and he had known a neighbor who had been injured in bed by the material of the ceiling of his bed-room falling on him, as it was shaken down by the vibration or shock. On the motion of Mr. A. Ritherdon, seconded by Mr. Cousins, it was resolved to petition the Metropolitan Board on the matter. The meeting having been addressed by Mr. Gates, of Lee, Mr. Holloway, of Newcross, and others, it was resolved to extend the agitation, and the proceedings closed with a vote of thanks to the Chairman."

#### Strange Fault in a Contractor.

A foreign exchange says that differences have arisen between the Italian Government and the directors of the St. Gothard Railway Company such as perhaps have never been heard before, the former accusing the latter of having contracted for the perforation of the great tunnel at too low a figure. The contract was taken by M. Favre, of Geneva, in strict conformity with the conditions laid down, that gentleman having made the lowest offer and duly deposited the sum required—eight million francs—as security for the performance of his part of the agreement. In the debates of the Italian Parliament on the subject of the contract, some influential parties succeeded in introducing in it a clause making it binding on the contractor to allow the persons engaged in the execution of the Mount Cenis tunnel to have a share in the new undertaking. In the competition for this last the offers of the Italian contractors were rejected, as they demanded no less than twelve million francs more than M. Favre. By virtue of the above-mentioned clause that had been smuggled into the contract, as one of the conditions, the Mount Cenis people, represented by Signor Grattoni, were offered the refusal of taking an interest in the contract to the extent of one-half, but this was indignantly rejected as not in accordance with the clause, though their real ground for refusal was that their share of the profits, under the contract of M. Favre, did not come up to their expectations. They have now succeeded in engaging the Italian Government to put itself forward as their champion, and make difficulties about confirming the contract with M. Favre, under the pretext of the sum being too small for the honest performance of the work—though, as above stated, he has deposited the caution-money required—in order to secure for their proteges some pecuniary advantages. It is even reported—though, it must be confessed, it is not probable—that Italy has threatened, in case of non-compliance, to withdraw its promise of subvention for the execution of the undertaking. This is more unlikely, as it is based on an international treaty with Switzerland, Germany, and some of the adjoining railroad companies, who expect to derive an accession of traffic when the line is completed.

#### Nutter's Car Hoist.

The *Montreal Gazette* gives this description of a machine used in transferring car bodies from trucks of one gauge to those of another:

"The machine or lifter consists of a frame 10x20, placed under the track, with four powerful upright screws set at each corner of the frame, which are turned by four horizontal shafts attached to a bevel cog-wheel on a vertical shaft set in the center of said frame, which is driven by steam or any other motor. Two beams are attached to the upright screws, and run parallel with the track. The car is run in between the two parallel beams; two bars of iron are run under the body of the car with each end resting on said parallel beam; motion is then given to the center wheel, which turns the screws in unison, and in thirty seconds the car body is raised high enough to disconnect the trucks from the body. The trucks are then attached to an endless chain and are shunted on to a side-track, while at the same time another set of different gauge trucks are drawn from another side-track by the same chain and placed in the proper position to receive the body of the car, and in less than five minutes from the time the car is stopped at the end on the narrow gauge the narrow-gauge truck is removed, the wide-gauge truck substituted, and the car ready to go on its journey with its running gear in good repair."

#### A Great Snow Plow.

The *Omaha Bee* gives this description of a snow plow which the Union Pacific is building in its shops at that place:

"The trucks on which it is built are very heavy and strong, and were cast especially for this plow. The platform on the trucks is 22 feet long, and 10 feet 6 inches wide, and is composed of solid oak timbers, 8 by 16 inches. The timbers are held together by 10 iron bolts, 1 1/2 inches in diameter, which run crosswise. This solid bed is fastened to the transom beams by 40 bolts, 20 over each truck. The inclined slide, placed on the platform, is 22 feet long, and slopes at an angle of 30 degrees, and is held firmly to the bed by 40 bolts, of an inch in diameter, and is supported from behind by inclined posts, 6 feet long, 8 inches wide and 16 inches thick. The entire length from the rear of the platform to the end of the slide is 32 feet. The slide is to be ironed, and an immense plow, of the ordinary shape, 18 feet long, 11 feet wide, and 5 feet high, and covered with iron 3-16 of an inch thick, is to be securely placed upon it. On the point of this plow there is to be an iron plate, steel pointed, 11 feet long and 4 feet wide. This plate of course runs across the track, and only an inch above it.

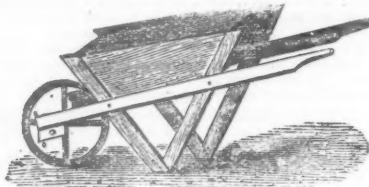
"The rear of the platform will be boxed in, making a room

12 feet high, 11 feet wide and 10 feet long, for the purpose of keeping the snow out. It will be furnished with a door, so that, if necessary, it can be loaded with iron.

"The monster will weigh 50 tons, and will be operated by three of the heaviest engines on the road. The cost will be over \$5,000."

#### Improved Wheelbarrow.

The engraving above represents an improvement in the manner of constructing this useful implement, which, we think, will need no explanation or description. We think it will strike



most of our readers as it did us as being an excellent design—if the word can properly be applied to a wheelbarrow—and as being so obviously good as to make it seem almost absurd that it has not occurred to any one before. The plan of construction is clearly stronger, simpler and cheaper than the ordinary manner of making wooden wheelbarrows. The engraving is copied from the *English Mechanic*, and the plan is patented in England.

#### Railroad Manufactures.

It is reported that a tract of one hundred acres of land, located at McKinney's Station, ten miles from Pittsburgh, on the Pennsylvania Railroad, has been purchased at a cost of \$200,000 by a company of New York & Pennsylvania capitalists for the manufacture of steel by the Bessemer process. The capital of the company amounts to \$1,000,000. The works will have extraordinary facilities for the receipt of raw materials, coal, coke, etc., and the shipments of their manufactured products.

#### OLD AND NEW ROADS.

##### Chicago, Pekin & Southwestern.

Construction trains are running from Pekin northwest to Eare, a distance of about 23 miles.

##### Lake Shore & Michigan.

This company has issued a new loan of six millions of 7 per cent. bonds, for the purpose of meeting the expense of the extensive improvements now in progress. These bonds run ten years, and are to be retired by a sinking fund of \$600,000 yearly. They are sold in New York by Robinson, Chase & Co. There is probably no expenditure so profitable as that made in enlarging the capacity of an old railroad, when its traffic is crowding it, as is the case now with the Lake Shore.

##### Michigan Central.

The company's earnings in October were 35 per cent. greater than in 1871, on the same mileage, and the pressure of traffic clearly indicates that the great improvements in the road and increase in its rolling stock made this year have not been made a moment too soon. To say nothing of the larger traffic which it will carry, there will be a saving in working expenses which alone will go far toward justifying the expenditure.

##### Philadelphia & Reading.

Considerable feeling has existed in the city of Reading, Pa., with regard to the proposed removal of the railroad shops from that place. It is said that the company proposes to take this step in consequence of the recent action of the City Council of Reading in tearing up the new track laid on Front street in that city by the company, and in advocating the claims of the Berks County Railroad to the use of that street, in preference to those of the Reading Company. Recently several prominent citizens of Reading had an interview with Mr. Gowen, President of the Reading Company. Of this interview the *Reading Times and Dispatch* says, after giving Mr. Gowen's assertion that no idea of removing the shops had been entertained before the hostile action of the City Council with regard to the Berks County Railroad:

"We gathered further, from the conference with Mr. Gowen, that the company is seriously considering the expediency of purchasing several thousand acres of land at some eligible point on the line of their roads for the purpose of building up a town of their own, which they would make their great manufacturing depot and business headquarters. It will be recollected that, many years ago, the Pennsylvania Railroad Company removed their extensive shops from Parkersburg, Chester County, and built up the railroad town of Altoona, which has since grown into a flourishing city. A similar course was adopted a few years ago by the Sunbury & Erie road, which built up the town of Renovo, in Clinton County, on the West Branch of the Susquehanna above Williamsport. In these towns the real estate is mainly if not entirely owned by the companies named, and the houses, hotels, stores and machine shops leased to the citizens, who are mostly employees on their roads. The present officers of the Reading Company held that the removal of their shops, manufactories and thousands of employees to a new locality, would at once build up a flourishing community, and that the loss they would sustain by the sale or abandonment of their present establishments would be more than made up by the rapid appreciation of property in the new town, which would always be under their exclusive proprietary and municipal control."

##### New York Stock Exchange.

The Governing Committee of the Stock Exchange has placed the first-mortgage bonds of the Western Pacific Railroad and the State-aid bonds of the Central Pacific Railroad on the regular list. The first-mortgage consolidated 7 per cent. bonds of the Pittsburgh, Cincinnati & St. Louis Railway, the 6 per cent. consolidated convertible bonds of the Consolidation Coal Company of Maryland and the first-mortgage bonds of the Sixth Avenue Railroad, are now on the free list; and the Mariposa Land & Mining Company, common and preferred stock, and the bonds of the State of Missouri of July, 1872, payable twenty years after date, from 1 to 200, inclusive are on the regular list.

##### Grand Trunk of Canada.

The report of Mr. E. P. Hannaford, the Engineer, states that in the working of his department for the six months ending the 30th of June the maintenance of way amounted to \$70,913, and the renewals to \$76,781—total \$147,699. The cost of maintenance was \$5,157 more than in the corresponding period of 1871, and was caused by the increased rates of wages and advance in the price of materials. Twenty-five and a half miles of re-rolled rails and 24 miles of steel rails had been laid in track during the six months. Up to the 30th of June 100,000 cubic yards of ballast was placed on the track, ballasting 65 miles of road. Three brick arch bridges between Montreal and Toronto were being entirely rebuilt in substantial stone masonry. Between Montreal and Portland the erection of iron bridges to replace the original wooden trusses was being proceeded with, and the cost was charged to revenue. At Portland an extensive renewal of the company's wharf was in progress, and station and freight sheds were receiving their usual repairs; at Sarnia and Port-

land the ferry landing stages and berths were being repaired and adapted to the new iron ferry boat, which was completed and working regularly, answering all requirements for the crossing of traffic in bulk, and adding largely to the accommodation for the growing business. The large quantity of steel rails contracted for and arranged to be put into the track this year would greatly facilitate the movement of traffic. Their experience on those portions of the line laid with steel rails proved the economy of extending the works as speedily as possible.

There being 1,377 miles of road, the renewals were about at the rate of one-fourteenth per year; but the company having a large mileage on which the wear is almost nothing, this is not so low a rate as it might seem.

##### North Grey.

The track is laid to Meaford, Ont., the northwestern terminus of the line, 22 miles from Collingwood, and the opening will take place some time during the current month.

##### National Railway.

The argument for an injunction to restrain the National Railway Company from constructing their railroad between New York and Philadelphia was to have begun before Vice-Chancellor Dodd, at Trenton, N. J., November 14; but owing to the fact that the Pennsylvania Railroad Company, the complainant, was not ready, the Vice-Chancellor, with the consent of the parties, fixed the hearing for Tuesday, the 3d day of December. The complainants were also permitted to amend their bill by putting the Stanhope Company in that part of the bill where process is asked, it having been omitted in printing. It was generally agreed that there should be no further delay.

##### Missouri, Kansas & Texas.

This railroad received last week nine car-loads of cotton from Texas for transportation to St. Louis. Fifteen bales were shipped by that road by way of St. Louis to New Orleans.

##### Rochester & Genesee Valley.

The Supreme Court of the United States on the 14th inst. heard the case of Miller and others against the people of the State of New York and others, from the Court of Appeals of New York, involving the question whether the Legislature of 1867 had the power to increase the number of directors to be appointed by the city of Rochester in the board of directors of the Rochester & Genesee Valley Railroad Company, the original act having limited the number to four. The amended act authorizes the appointment of seven by the city, giving it a majority of the board, and it is contended here that as this is in derogation of the rights of the stockholders under the original act it impairs the obligation of the contract, and is void by the provisions of the Constitution of the United States.

##### East Tennessee, Virginia & Georgia.

The annual meeting of this company was held in Knoxville, Tenn., November 13. A telegram to the *New York Herald* says:

"For some days past there had been an intimation that an effort would be made to displace the present management, at the head of which are the President, R. T. Wilson, of Broad street, New York; Joseph Jaques, of Knoxville, Superintendent, and Charles M. McGhee, one of the directors. These gentlemen, with a few others, it is said, own a large proportion of the company's stock, and it has been said that they have sold the same to the Southern Security Company, of which Tom Scott is the great head. It is charged that the directors have by this secret sale been enabled to get a premium on their stock, at the expense of the other stockholders, by purchasing from small holders at nominal market rates, ranging from thirty to sixty cents, and selling to the Security Company at more than par.

"The fight was commenced yesterday by Joseph B. Heyrckell, attorney for certain small stockholders, and in a few moments the fact was developed that he also represented General Mahone, President of the road from Norfolk to Bristol, which forms, with the East Tennessee, Virginia & Georgia road, the grand trunk line hence to the seaboard. The significant fact being proved that the great Virginia railroad king was really the power behind the small stockholders, it was at once evident that there was a "cat in the meat tub," and that he meant business.

"What Mahone is after is to control this road himself, and to build up Norfolk. The management of this road, on the contrary, have purchased a North Carolina incomplete road, and by extending it into Tennessee to tap the East Tennessee, Virginia & Georgia at Morristown, forty-two miles from this point, obtain a complete line of their own to New York, and leave Mahone's road from Bristol to Norfolk out in the cold. Hence the fight. The preliminary skirmish resulted in victory for the Tom Scott party, but there is almost a certainty of a fierce litigation. The small stockholders declare that the purchase of the North Carolina road is illegal, and that in various ways Wilson has been building up a ring to the injury of the stockholders of this section. On the contrary, the management assert that the whole opposition to their projects looking to the North Carolina route to New York comes from the Mahone combination. To-day, through his attorney, Mahone offers to purchase, with the consent of the stockholders, every share at par—a proposition which it is safe to say was put forward as a feeler, it being certain that no hopes of its acceptance were entertained. The situation is critical and excitement runs high, but the management feel confident of sustaining themselves."

##### Pennsylvania—Amboy Division.

Since the adoption of the present time-table, which took effect October 27, the steamboat line between South Amboy and New York has been abandoned, and the two steamboats, Richard Stockton and William Cook, which have for many years been run on that line are to be sold. For the present no trains will run through from Philadelphia and New York by way of Amboy, but when the bridge over the Raritan between Perth Amboy and South Amboy is completed, trains will run to New York by way of Rahway and Jersey City. This bridge, it will be remembered, is to be used in common by the Pennsylvania Railroad and the New Jersey Central's Long Branch Line. No express trains have been run on the Amboy route for several years, and through travel has been very small, the express trains all going by way of Trenton and Jersey City.

##### Milwaukee & St. Paul.

This company is constructing a winter bridge over the Mississippi at North Lacrosse, along the route selected by it for a permanent bridge, and is also constructing a line of about one-half a mile in length to connect the Chicago, Dubuque & Minnesota and the Southern Minnesota Railroad with the same bridge, thus showing its adaptation to the want of all the railroads now existing in the vicinity.

##### Paducah & Memphis.

A correspondent informs us that this road is being extended rapidly towards Memphis. Track is laid from Troy, Tenn., southwest five miles, and much more is ready for the iron. There are now two trains daily between Paducah and Troy—63 miles.

##### Springfield & Northwestern.

Messrs. Thompson, Grigg & Co., contractors, have bought this railroad, and have entered into a contract to complete it from Springfield to Lewistown, Ill. (about 60 miles), within 12 months. Twenty-five miles of the road is now in running order, and trains are running over it regularly. About 12 miles more is graded, bridged and tied, ready for the iron, which will be laid immediately. A Springfield paper says that the inten-



tion is to complete this fall the grading already begun, which extends into Sangamon County about a mile, and the rest early in the spring. It says also that the Springfield Rolling Mill will supply the iron.

#### Detroit, Eel River & Illinois.

The work of extending this line to Logansport is under way, and will be completed this season. This will give the Logansport, Crawfordsville & Southwestern a choice of routes for its eastern traffic—by way of Toledo and by way of Detroit, and by way of Columbus.

#### Union Pacific.

Counterfeit coupons of the 10 per cent. income bonds of this company have been discovered, and holders of these bonds are invited to verify them at the office of the company in Boston, or of Morton, Bliss & Co., the Financial Agents, in New York.

#### San Francisco & Colorado River.

The proposition for the city and county of San Francisco to give \$10,000,000 in aid of this road was submitted to a vote on the 5th. There were 155 votes given in favor of it, and 15,504 against.

#### North Pacific Coast.

This company has executed a mortgage of \$10,000,000 on its contemplated road to Philo C. Calhoun and Eugene Kelly, of New York. Concerning the route of the road, the *Sausalito* (Cal.) *Herald* says:

"The main line is to run from Sausalito to Humboldt Bay, by way of San Rafael, from which point branches are to run to Tiburon or Shark Point, opposite Angel Island, and to Napa Junction, on the California Pacific Railroad. Near Donahue a connection will be made with the road from that point to Cloverdale, from which latter point Humboldt Bay is only 130 miles distant. About 24 miles of new road will have to be built under the programme indicated in the mortgage, and the \$10,000,000 would allow \$50,000 per mile, enough to secure the completion of the work."

#### Burlington, Cedar Rapids & Minnesota.

The Burlington (Iowa) *Hawkeye* says: "The company have concluded to purchase sufficient iron to lay the track on the line from Postville to Long Grove. The iron is now in Buffalo and will be sent forward promptly and laid early in December."

"The western extension, or Liscomb Branch, is also being pushed to completion. This branch leaves the main line at Vinton and runs in a westerly direction to Liscomb, a town on the Iowa Central near the northern line of Marshall County, and a distance of some fifty miles from Vinton. The grading is about finished for twenty-four miles and the iron is now going down."

The line from Postville to Cedar Rapids is known as the Milwaukee Extension. Vinton, from which place the Liscomb Branch starts, is 25 miles northwest of Cedar Rapids.

#### Baltimore & Potomac.

A Washington correspondent, writing under date of November 10, says:

"Under an order from the Board of Public Works a large force of laborers was placed at work this evening to remove the railroad track running from First street west to Sixth street southwest, and after several hours' work the track was entirely removed."

"No threats of intimidation or attempts at resistance on the part of the Baltimore & Potomac Railroad officials were made manifest."

"This removes the track formerly in the immediate front of the eastern entrance to the Capitol Grounds."

#### Maryland Central.

This company has petitioned the Common Council of Baltimore to aid the company by giving the endorsement of the city to its bonds. The late City Council sometime since repealed the ordinance passed by a preceding Council subscribing \$750,000 to this road.

#### Long Island.

The laying of the track on the extension of the Northport Branch from Northport to Port Jefferson has been completed. The extension is about 17 miles long.

#### New York, West Shore & Chicago.

Surveys are being made between Fort Plain and Little Falls, N. Y. At Little Falls it is proposed to make a tunnel about 1,000 feet long through the hill south of the village.

#### Kansas & Nebraska.

The people of Butler County, Kansas, have voted \$200,000 in aid of this road. Parties are at work on the grading between Marion Center and Peabody, in Marion County. Five miles of the road south from Junction City are to be finished this winter.

#### Ashtabula, Youngstown & Pittsburgh.

We are indebted to the Resident Engineer for the following description of this road:

"The Ashtabula, Youngstown & Pittsburgh Railroad commences at Youngstown, Ohio, and runs from there along the Mahoning River to Girard; from thence along the same stream to Niles, thence nearly parallel to the Cleveland & Mahoning road to Warren, Ohio, at which point it crosses the latter road; thence in a due north direction to Ashtabula, Ohio, crossing the Lake Shore & Michigan Railroad at that place, and thence going about 2½ miles further to the harbor of Ashtabula, where our company are constructing docks now. Our road runs at Ashtabula parallel to the Ashtabula & Jamestown road for about half a mile. The track will be laid to Ashtabula this week, and in four weeks we expect to have a continuous route from Youngstown to Lake Erie. At Youngstown the road connects with the so-called Lawrence Branch, operated by the Pennsylvania Company, which connects with the Beaver Valley Railroad, and over that road and the Pittsburgh, Fort Wayne & Chicago Railway the traffic of this road will reach Pittsburgh. All these roads are operated by the Pennsylvania Company. The Ashtabula, Youngstown & Pittsburgh Railroad is built by the Granite Improvement Company, and will be operated by the Pennsylvania Company when completed. The road is about 62 miles long, and has very light and favorable grades, with only one exception, near the lake. The grading and track-laying will all be completed this month."

This company intends constructing a slip at Ashtabula harbor, which will be 873 feet in length, 125 feet wide and 14 feet deep. Tracks are to be built on both sides of it. Other slips are contemplated as soon as this one is completed. The company have commenced vigorously driving piles for the immense docks which are to be built for the accommodation of the large quantities of coal and iron ore which, it is expected, will be transported over the road and shipped at that point. The government and railroad company's dredges are constantly employed in deepening the channel of Ashtabula River. Cranes and other machinery for hoisting ore and coal have arrived at the station and will also soon be put in operation at the harbor.

#### Cincinnati, Covington & Cumberland Gap.

The *Railroad Record* learns that this company has hopes of securing private and county subscriptions sufficient to enable it to construct its road, the route of which is from Cincinnati south by east through Mount Sterling, Sturgeon and Manchester, Ky., to Cumberland Gap, 202 miles. At the latter place it would connect with an extension of the Atlantic, Mississippi & Ohio Railroad, and in connection with this road open a route from Cincinnati to City Point, Va., 638 miles long, which is only 20 miles longer than the route by the Chesapeake & Ohio.

The proposed road would make a right angle with the Atlantic, Mississippi & Ohio. The connection with Cincinnati could be made by constructing only 140 miles of road, if the line should be built from Mount Sterling northwest 20 miles to Paris, Ky., on the Kentucky Central, instead of northward to Cincinnati. South of Mount Sterling it would have the country all to itself, and there is said to be valuable coal fields on the route.

#### Houston & Texas Central.

Cars are running to Wilson's Creek, 23 miles north of Dallas, Texas, which is 13 miles further than at last reports. As soon as the bridge at that point is completed cars will run to McKinney, 31 miles from Dallas.

#### Sabula, Ackley & Dakota.

This road is nearly completed to Marion, Iowa, and cars will run to that point in a few days. Marion is 85 miles from Sabula and 15 miles beyond Vinton, the late terminus.

#### Red Wing & Menominee.

A survey has commenced for a railroad from Hudson, Wis., east to Red Wing, a distance of about 45 miles.

#### Milwaukee & Northern.

The grading is completed to Green Bay, with the exception of some dredging near that point, and iron is laid to Menasha, leaving only 27 miles of track to be laid to complete the line. Surveys are now being made for the extension north of Green Bay, the line being located to Shawano.

#### Mississippi Central.

The Cairo (Ill.) *Bull.* of November 12, says:

"We learn from Mr. J. J. Harkless, of Ballard County, that the grading and trestling are both under way in that county, about six miles from this place. About 400 men are now employed on that part of the work. DuPoister & Bodin are doing the grading, and Saulpaugh & Neeley is doing the trestling. The contractors are working towards Cairo, and the road-bed is to be completed to this city by the first of June next."

#### Atchison, Topeka & San Fe.

Kaw township, Mo., has voted \$100,000 towards building a branch of this road from Kansas City to Lawrence, Kan. The branch is to run along the south side of Kaw River to Lawrence, where it will meet the road now being built from Topeka to Lawrence.

It is reported that work will shortly be commenced on a branch from Cedar Point, 146 miles from Atchison, south about 35 miles to Eldorado, in Butler County.

#### Leavenworth, Lawrence & Galveston.

The Lawrence (Kan.) *Standard* says:

"It is reported that this company has made arrangements with the Kansas Pacific to run through trains over its road to Leavenworth, and that additional trains will be put on, so that three trains daily will pass both ways over the road."

#### Norfolk & Charleston.

There is talk of constructing a narrow-gauge railroad from Norfolk southwestward along the coast through Wilmington to Charleston, and the projectors talk of extending such a line, at some time, northward to Washington, etc. The country along the coast is chiefly pine woods everywhere south of Norfolk, and by no means rich.

#### Mount Auburn Railroad.

This road, a Cincinnati suburban line, with its equipment, etc., is to be sold at the Court House in Cincinnati, January 2, 1875, by order of the Superior Court in the case in which J. W. Post and Thomas B. Wilson are plaintiffs and T. A. Nesmith and the company defendants.

#### Elizabethtown & Paducah.

This company offers to construct a branch from some point on its line not further west than Litchfield, Ky., northward to Louisville, provided that Louisville will subscribe \$1,000,000 to its stock. The Common Council has authorized the Mayor to make this subscription, and the proposition is soon to be submitted to a vote of the electors, we believe. As the road now is, its traffic is secure to Louisville, as it has no other eastern outlet, its eastern terminus being on the line of the Louisville & Nashville Railroad. But it is more than possible that at some time the road may be extended eastward so as to have connections with Cincinnati on the Chesapeake & Ohio Railroad, and have no interest in carrying traffic to Louisville. Moreover, with an independent line into Louisville, it will give that city a second route to Memphis and other parts of the Southwest, whereas now its only choice of routes is between the Louisville & Nashville Railroad and the river.

#### Owensboro & Russellville.

Col. R. S. Bevier, Vice-President of this company, makes the following announcement of the contract for the union of this and the Cumberland & Ohio Company in the Russellville (Ky.) *Herald* of November 12:

"On last Thursday, in Louisville, Col. J. J. Turner, representing the Cumberland & Ohio Railroad, and Col. R. S. Bevier, representing the Owensboro & Russellville Railroad Company, concluded and signed articles of agreement, subject to the ratification of their respective companies, contracting to unite the joint ownership, construction and management of a railroad from Gallatin to Lebanon, Tenn., or to such point as said companies may diverge their roads, the Cumberland & Ohio in direction of Murfreesboro, and the Owensboro & Russellville in direction of Chattanooga, and also of a joint road entering Nashville from the north as far as both companies may use the same. Each company is to have an undivided one-half interest and control of the joint roads through an executive committee, to be appointed by both, and to be under the joint supervision and control of the superintendents of both companies. All stock taken in the joint roads is to be equally divided between the two companies. That is, the subscriber will have one-half the amount subscribed by him as stock in the Owensboro & Russellville Railroad, and the other half will be stock in the Cumberland & Ohio Railroad. Of the \$300,000 subscribed to the Owensboro & Russellville Railroad by the county of Sumner, \$100,000 is to be expended between Gallatin and the Cumberland River, and in the construction of the bridge, to counterbalance which the Cumberland & Ohio Railroad Company are to subscribe \$100,000 to be applied at the same place, which is enough to complete that part of the road and build the bridge."

"All questions pertaining to the issue of bonds or the raising of money to build or equip the joint roads are to be determined by joint meetings of the boards of directors of the two companies or by joint committees appointed by them."

"Either company using the joint roads more than the other is to be charged for the excess of use at the lowest rates. At the option of the contracting parties this agreement may be extended beyond the dividing point both to Murfreesboro and to Sparta or to the connecting point with Chattanooga."

The *Herald* adds:

"This union of these two roads will add great strength to all applications for aid in the counties through which they run, and we understand that Colonels Turner and Bevier will at once enter upon the work together, and push it through as rapidly as possible."

"We are also informed that there is a large company now organized to open coal mines in Muhlenberg County, who have purchased a large body of the best coal lands there, and will soon commence extensive mining operations. As soon as they can get their mines open and the track is laid to them they

propose to ship at least 100 car loads of coal a day to Owensboro, and thence on the river. And this speaks well for the future of this road when the business given to it by this one company will more than pay the interest on all the indebtedness of the company."

#### Eastern.

Immediately after the Boston fire this company offered to store, free of cost, all goods accumulating at their freight houses in East Boston consigned to sufferers by the fire. The clerks who have been thrown out of employment by the fire, living on the line of the road and holding season tickets, have had them redeemed by the company and the money refunded for the unexpired term.

This company has purchased Noble's Island at Portsmouth, N. H. This gives the company access to deep water and extensive wharf privileges.

#### Sixth Avenue Railroad.

This company's securities were recently placed on call in the New York Stock Exchange. In making application to the Governing Committee, the company submitted the following statement:

"Organized under a grant from the Mayor, Aldermen and Commonalty of the City of New York, dated September 6, 1851, and confirmed by act of the Legislature passed April 4, 1854. Capital stock, 7,500 shares, of \$100 each—\$750,000. All the stock has been issued. Under a resolution of the Board of Directors passed May 7, 1868, the company was authorized to issue bonds to the amount of \$500,000, to bear interest at the rate of 7 per cent. per annum, payable at the office of the company, January 1 and July 1, which are a first mortgage upon the franchises, all the real estate between Fifth and Sixth avenues, and Forty-third and Forty-fourth streets (consisting of 31 lots of land and the depot thereon), and all its personal property. There are 500 of these bonds of \$1,000 each, numbered from 1 to 500 inclusive, dated July 1, 1868; due July 1, 1889. 250 were issued July 1, 1868, and 250 remain to be issued; total, \$1,000,000. Equipment—4½ miles of double track, 87 passenger cars, 830 horses, harness, machinery, tools, wagons, carts, &c. The company also own, free and clear of all incumbrance, 15 lots of land on Sixth avenue, Fifty-eighth and Fifty-ninth streets. Officers—President, T. B. Butler, No. 433 Fifth avenue; Treasurer and Secretary, H. S. Moore, No. 443 East One Hundred and Seventeenth street; Superintendent, J. B. Bidgood, No. 43 West Forty-third street."

Thus the bonded debt issued is at the rate of \$55,555 per mile of road, and the capital stock just three times as much, or \$166,665 per mile, making the total capital account \$222,220 per mile. If the balance of bonds authorized is issued it will raise this amount to \$277,775 per mile. The equipment of the road is probably worth something like \$30,000 per mile, and the real estate is, perhaps, costlier than all the rest of the property.

#### Union Ferry Company.

This company, which works the four principal down-town ferries between New York and Brooklyn—Fulton, Wall street, South and Hamilton—and is one of the largest carriers of passengers in the country, held its annual meeting in Brooklyn on the 19th, at which the following report of assets and liabilities was made:

#### ASSETS NOVEMBER 1, 1874.

Boats.....	\$235,000 00
Ferry houses.....	248,033 93
Racks, bridges and floats.....	40,000 00
Real estate.....	340,000 00
Machinery, iron and tools in shops.....	13,000 00
Lumber, paints, etc.....	2,800 00
Horses and carts.....	2,000 00
File drawers and tools outside.....	2,500 00
Office furniture.....	3,000 00
Wood and coal.....	72,500 00
Taxes due by city of New York.....	29,749 75
Petty cash.....	1,000 00
Cash in banks.....	2,778 79
Total.....	\$1,442,152 49

#### LIABILITIES.

Capital stock paid in.....	\$1,000,000 00
Sundry bills due, about.....	7,000 00
Due for coal.....	20,500 00
Loans.....	42,500 00
City of New York, rent May 1, 1871.....	92,151 25
Balance dividend due, November 1.....	34,000 00
Tickets unredeemed.....	41,312 41
Taxes, city of Brooklyn, estimated.....	35,000 00
Claims in suit.....	90,000 00
Total.....	\$1,292,434 35

#### Concord & Rochester.

In the year 1869 the New Hampshire Legislature granted a charter for the building of a railroad from Concord to Rochester. The road has not yet been commenced, and the Board of Trade of Dover City, of which Oliver Wyatt, Esq., is President, have appointed a committee to examine into the feasibility of building a railroad from that city to Concord via the Cochecho River valley, through Norwood, Epsom and Chichester, and to urge the passage of a bill by the Legislature next June, changing the charter of the Concord & Rochester road so as to run it as above described. The distance by rail now via Newmarket Junction, which is the only route, is 59 miles, while the distance of the proposed route would be only 36 miles. The distance from Portsmouth to Concord is 59 miles by the Concord road; with the Portsmouth & Dover road finished (which can be done in a year) and the connection at Dover as desired by the Board of Trade, the distance between Portsmouth and Concord would be lessened 13 miles. With these two roads built, Concord would be only 42 miles from the tide water at Dover Point, where vessels of the largest size can lie. This is 17 miles nearer than at any other place. The towns of Stratford and Northwood have already appropriated money for the purpose of defraying expenses in carrying out this enterprise, and it has already assumed a tangible form and shape.

#### Cairo & Fulton.

The *Arkansas Gazette* says: "We are informed, by reliable authority, that work is progressing quite rapidly on this great thoroughfare between Little Red River, the present terminus, and the Missouri State line, to which point the Iron Mountain Extension has been finished and running for several days. There only remains a very small amount of grading to be done, which will be completed before the track-laying reaches such points. Track-laying is progressing rapidly south from the Missouri line, north from White River, south from White River, which insures the early completion of this great enterprise say by some early day in December next. The temporary bridge at Little Red affords a ready passage over the stream, and the permanent bridge is being rapidly built. The bridge at White River is likely to be the last thing completed, but a large force is at work on it."

#### St. Louis & Southeastern.

A correspondent of the Cincinnati *Commercial* says:

"The work is now in progress to perfect the transfer between Evansville and Henderson, and it is expected that some time in November passengers will be carried from St. Louis to all points in the South without change of cars, and freight without breaking bulk. This is to be secured by means of a hydraulic hoist and transfer tables, an ingenious device whereby two cars can be lifted at once and other trucks put under them, the time for such transfers being but four minutes. The cars will go thus up and down the Ohio, effecting the change without the slightest inconvenience to passengers. In November a through line



of Pullman sleeping-cars will be put on, with all the latest improvements, and we Southern Hoosiers may then congratulate ourselves on being midway on the finest line in the central West. The natural consequence of this, with other connecting lines, is that my old city, Evansville, has nearly grown out of my knowledge."

With this transfer, the facilities of this company for doing Southern business will be very greatly increased, the advantage for freight being much greater than for passengers. With it, the St. Louis & Southeastern can offer the shortest route from Chicago as well as St. Louis for cars going through to Nashville and points beyond.

#### Long Island.

The company proposes to have a new steamer constructed to ply between Greenport and New London, on its Boston line, and the line is to be closed until next April, when it is supposed that the new steamer will be completed.

#### The Cherokee Neutral Lands.

There was a few years ago a bitter contest as to the validity of the title to these lands exercised by the persons who constructed the Missouri River, Fort Scott & Gulf Railroad. The case has been through courts and has finally been decided by the United States Supreme Court, whose decision is reported by telegraph from Washington as follows:

"In the case of Holden agt. Joy, from the Circuit Court for the District of Kansas, which was argued at the last term of the Supreme Court of the United States, an important question is settled by the decision now made. By the treaty of 1835 with the Cherokee nation, that tribe was ceded the land in question, now forming a part of the State of Kansas, with a provision that in case there ever should be an abandonment of the lands they should revert to the United States. In 1861 the tribe joined the Confederates and abandoned the reservation, and thereupon the appellant here and numerous others, construing the treaty for themselves, entered upon the lands and pre-empted claims, regarding the territory as being again public lands of the United States, by reason of the abandonment, and subject to pre-emption. In 1866 a treaty was made with the tribe, by which it was agreed that these lands should be sold for its benefit, and that it should thereafter relinquish its title thereto. Under this treaty the appellee purchased the lands held by him, paying the stipulated price, and thereupon the question arose whether Holden, who had pre-empted, or Joy, who had purchased, under the circumstances stated, the same land, had the better title, and that question was presented. In this case, the Court below sustained the title of Joy, and this Court now affirms the decree in an elaborate opinion, holding in substance that the tribe took title under the treaty of 1835 as a nation, and that this title was not diverted by abandonment unless the clause of forfeiture for that cause was enforced by the United States; that as the United States did not enforce the forfeiture, the title remained in the tribe and could not be impaired by the entry and occupancy of private parties; that the pre-emption of the land by settlers was void, because the lands were not the public lands of the government and subject to such entry; that by the treaty of 1866, as supplemented in 1868, the lands became subject to sale, as therein agreed, and the appellee, purchasing in accordance with its terms, became the possessor of a good title to the lands purchased. Mr. Justice Clifford delivered the opinion. This decision disposes of cases Nos. 327, 328, and of many other claims of a similar character."

#### Belvidere Delaware.

It is reported that the Pennsylvania Railroad Company, which leases this road, has decided to extend it from its present terminus at Manunka Chunk up the Delaware River, through the Water Gap to Milford, Pa., a distance of about 45 miles. It is also stated that the projected Lehigh & Eastern Railroad, from Hazleton, Pa., to the Hudson River, will be built in connection with this extension. It is possible that this may be designed as an outlet for traffic to New England.

#### Iron Hill.

This is the name of a company which proposes to build a railroad of three-foot gauge from the mines of the Shenandoah Mining Company, in Dutchess County, N. Y., to the Hudson River, a distance of 15 miles. The company has now no means of transporting its iron ore to tide-water except by teams.

#### New York Central & Hudson River.

Surveys are being made for a branch or cut-off road around Schenectady. The new line will start from the Athens Branch, about a mile and a half from Schenectady, and run through Rotterdam to an intersection with the main line near Hoffman's Ferry. The road will be about eight miles long, and will avoid the present heavy grade. This is doubtless a part of the new freight track which is to be laid along the entire line.

The company is erecting a large dam near Sing Sing, on the Hudson River Division, for the purpose of obtaining a better supply of water for their locomotives at that point.

The Court of Appeals at Albany, November 12, rendered a decision adverse to the company in two classes of cases, involving five hundred cases of one class and over one hundred of another. They are the suits originally brought against the company by various parties for excessive charges of fare between Buffalo and Niagara Falls. The cases were all appealed by the company on technical points, and the late decision dismisses the appeals.

#### Providence & Springfield.

The grading is nearly finished to Pascoag, about 22 miles from Providence, R. I.

#### Old Colony.

The contract for the extension of the Cape Cod Branch from Wellfleet, Mass., to Provincetown, has been let to Messrs. Dacey, and work is to begin at once. The distance is about 14 miles.

#### Coal Depot at Providence.

It is said that a Pennsylvania Coal Company has purchased a tract of 65 acres of land with 4,000 feet of water front at East Providence, R. I., and will begin the erection of coal docks at once.

#### Columbus & Ferrara.

The board of directors have made an agreement with the officers of the Atlantic & Lake Erie Company, by which the road from the junction near Pleasantville to Ferrara, O., is to be owned in common, each company to do an equal amount of work on the road. The stockholders of both companies will meet soon to ratify the agreement.

#### Lancaster & Straitsville.

Surveys have been commenced for a railroad from Lancaster, O., southeast through Straitsville to the coal fields of Sunday Creek. A strong effort is to be made to build the road at once.

#### Bridge over the Ohio River at Paducah.

Engineers are now in Paducah, Ky., making the necessary preliminary surveys for a bridge over the Ohio at that point. Plans and estimates of cost are to be made.

#### Rochester & State Line.

Grading from Scottsville for seven miles towards Rochester is finished, and the bridges over Big and Little Black Creeks are up. From Scottsville south to Caledonia, and also through

the towns of Middlebury and Pavillion the grading is nearly completed. A large force is at work all along the line as far as Great Valley in Cattaraugus County. The right of way has all been secured, with the exception of about two miles in the neighborhood of Rochester. The grading has been much delayed by the prevalence of the horse disease. It is hoped that the road will be in operation from Rochester to Leroy, about 25 miles, by June 1, 1873.

#### Southern Minnesota.

In the case of the application of the trustees for the bondholders of this company to have a receiver appointed, in consequence of the failure of the company to pay the interest on its bonds, Judge Nelson, in the United States Circuit Court at St. Paul, Minn., has given his decision. The order to appoint a receiver has been granted, and an injunction issued prohibiting the officers of the company from interfering with the receiver or the property.

#### Stockton & Visalia.

The people of Stockton, Cal., have subscribed over \$40,000 to the stock of the company which proposes to build a narrow-gauge railroad from Stockton south to Visalia. The length of the road would be about 150 miles, and it will be parallel and close to the existing road.

#### Zanesville & Cleveland.

Steps are being taken to build a railroad from Millersburg, O., to Dresden, there to connect with a branch from the Pittsburgh, Cincinnati & St. Louis road to Zanesville. At Millersburg connection is made with the Cleveland, Mount Vernon & Delaware road, of which the projected line would be a branch, thus forming a direct line from Cleveland to Zanesville. The distance from Millersburg to Dresden is about 30 miles.

#### Burlington & Southwestern.

All the iron necessary for the road between Laclede, Mo., to Moulton, Iowa, has been purchased, and the gap between the two ends of the line is being closed. That part of the line from Unionville, Mo., south to Laclede is known as the Linneus Branch.

#### Virginia & Truckee.

The Virginia City (Nev.) *Enterprise* says of the tunnel recently destroyed on this road:

"The workmen engaged in retimbering the American Flat Tunnel are making rapid progress, and in all probability the work will be completed in a fortnight. Three hundred and thirty feet of timbering has been completed already. An open cut of 90 feet will be made at the south entrance to the tunnel. For an additional distance of 125 feet the damage is but slight and can easily be repaired."

#### Missouri, Kansas & Texas.

The offices have been moved to Caddo, 23 miles south of Atoka. The track is within 11 miles of Red River, and all the piers for the bridge over that stream are finished. The superstructure of the bridge is rapidly approaching completion.

#### Dallas & Wichita.

Surveys for this road have been commenced, the engineers starting from Dallas, Texas.

#### North & South Georgia.

The Columbus (Ga.) *Sun* says that the following agreement has been made by parties representing the Savannah, Griffin & North Alabama Company and the people of Carroll County, Ga.:

"Carroll County is to furnish \$50,000, and the railroad interest referred to \$50,000 more, in consideration of which the North & South is to complete to La Grange, and then commence building at Carrollton, going north via Cedartown to Rome, the North & South to enjoy through rates over the Atlanta & West Point and the Savannah, Griffin & North Alabama Railroads."

#### Chester & Iron Mountain.

A shipment of iron has been landed at St. Mary's, Mo., for this road and track-laying commenced November 11, the working parties moving westward.

#### Chesapeake & Ohio Canal.

At the last monthly meeting of the directors, money was appropriated to build a steam pump for the Cumberland Division and for building a dam at the Little Falls. This action has been taken in consequence of the trouble which has arisen during the present season from scarcity of water at Cumberland and Georgetown. At one time the company was compelled to restrict boats to four feet draft.

#### New York, New Haven & Hartford.

This company has prepared to use the part of the Grand Central Depot in New York late for it, and by this time its trains probably start from it.

#### New York, Bay Ridge & Hempstead.

The contract for grading the extension from Hempstead to Jerusalem, L. I., has been awarded to Patrick Shields, and the work has begun. The contract for grading the west end of the road, between Valley Stream and Bay Ridge, has been awarded to Fairchild & Walker, who are to begin the work at once. A part of the road, from Valley Stream to Hempstead, has been in operation for a year past, and it is the intention of the company to have the entire line in running order by September, 1873.

#### Early Snow.

Some of the railroads in Northern Iowa were blockaded a short time last week.

#### Oil Creek & Allegheny River.

Since the lease of this road to the Allegheny Valley Company, extensive improvements have been commenced. All the bridges on the road are to be repaired and strengthened, and the line is to be put in good order throughout.

#### Warren & Venango.

The grading is now finished and rails are being laid from Pleasant Valley toward Titusville.

#### Lake Ontario Shore.

This road is opened for business from Oswego as far as Red Creek.

#### Pittsburgh, Virginia & Charleston.

This company has commenced to run passenger trains over their road from South Pittsburgh to Homestead. The failure of some of the contractors caused a stoppage of the work on several sections for a few days, but most of the abandoned sections have already been relet and the work will not be delayed.

#### Romney & Green Spring Run.

The preliminary surveys have been completed and the company will soon be ready to let the contracts. The right of way is now being obtained. The road, which is to be of narrow gauge, will extend from Green Spring Run, on the Baltimore & Ohio road, 163 miles west of Baltimore, south to Romney, West Virginia, a distance of about 17 miles.

#### Mansfield & Tuscarawas Valley.

This company, which filed its certificate of incorporation with the Secretary of State of Ohio lately, proposes to build a railroad from Mansfield, Ohio, through Richland, Ashland, Holmes, Coshocton and Tuscarawas Counties to Newcomerstown, on the

Pittsburgh, Cincinnati & St. Louis road. The road would be about 65 miles long. The proposed capital stock is \$50,000, and the incorporators are Henry H. Sturges, J. H. Cook, Lyman B. Matson, Z. S. Stocking and Barnabas Burns.

#### Shawnee & Millerstown.

This company filed its certificate of incorporation with the Secretary of State of Ohio, November 15. The proposed road extends from Millerstown to Shawnee City, both in Perry County, Ohio. The capital stock is to be \$300,000, and the incorporators are James W. Taylor, H. L. Anderson, Wm. L. Anderson, W. H. Wilmot, W. H. Beaumont, J. W. Carter and Allen Miller.

#### New York & Oswego Midland.

The Norwich and Auburn Division is completed to Venice Centre, 20 miles beyond Cortland, the late terminus. Grading on the uncompleted part of the road is progressing rapidly.

#### Walkkill Valley.

Surveys are being made for an extension of the road from Kingston, N. Y., to Catskill. The distance is about 24 miles, through a very hilly and broken country.

#### Buffalo & Jamestown.

Sixteen miles of grading is finished and three miles of track laid. The company has a locomotive and 22 cars on the road, and the work is progressing well. Some delay in the grading has been caused by the horse disease.

#### Peoria & Springfield.

The Bloomington (Ill.) *Pantagraph*, of November 15, says: "An item appears in various papers stating that the Peoria & Springfield road is to be completed this month. This is incorrect. The road is not even graded or located for much of the way between Springfield and Pekin. That portion of it between Pekin and Peoria will, however, be finished in a very few days and put in operation. It follows the eastern bank of the Illinois from Pekin for some miles, until it crosses the river on one of the finest bridges in the West."

That portion of the road between Peoria and Pekin is progressing well. Station buildings are going up at Wesley City and the iron is being rapidly laid. It is said that the Indianapolis, Bloomington & Western trains will be run over this line from Pekin to Peoria, instead of over the Peoria, Pekin & Jacksonville road, as at present.

#### Evansville, Terre Haute & Chicago.

That part of this company's line which extends from Danville, Ill., to the Indiana State line was built under an old charter issued to an Illinois corporation called the Danville & Rosedale Railroad Company. At a meeting of stockholders held at Terre Haute, Ind., November 12, this company was formally consolidated with the Evansville, Terre Haute & Chicago.

#### New Bedford & Taunton.

A statement with regard to the transfer of this road to the Boston, Clinton & Fitchburg says that the latter is to purchase, not lease, the former lower road, the price being \$1,000,000, which is reported to be less by \$400,000 than it would now cost to construct the road. A meeting of New Bedford & Taunton stockholders was to be held at New Bedford this week to ratify the transfer, so far as is possible without new legislation.

#### Putnam & Dutchess.

The stockholders will hold a meeting at No. 229 Broadway, New York, at 11 o'clock on the 16th of December, for the purpose of voting upon an agreement for consolidation with the New York & Boston and Dutchess & Columbia companies, made by the directors of the three companies.

#### New York & Boston.

The stockholders will meet at No. 229 Broadway, at noon of December 16, to vote on an agreement for consolidation with the Putnam & Dutchess and Dutchess & Columbia companies.

#### Pennsylvania Railroad—New York Division.

Mr. Ashbel Welch, the Chief Engineer of Construction, advertises for proposals for making the rock cut on the new Harsimus Fork, from the main line at Summit Bridge (about two miles from Jersey City ferry) eastward through the eastern ridge of Bergen Hill, to be submitted to him at Trenton by November 22. Copies of the profiles, specifications, etc., can be seen at the office of G. D. Howell, in Jersey City, as well as with Mr. Welch. There is a great deal of heavy work in this cutting, which will be both long and deep, and chiefly through trap rock.

#### Denver & Rio Grande.

On the 1st instant the company opened its Arkansas Valley Branch, 38 miles long, reaching coal fields. The company has now 15½ miles of road in operation, all completed within 18 months.

#### Philadelphia & Erie.

A correspondent in Williamsport says: "This company is doing a heavy freight business this year. The Eastern Division will average 1,100 cars moved daily, and on several occasions 1,250 were moved. Considering it is all a single track, with only ordinary side tracks, this speaks well for the train management. The track is in good order, with new iron, and is well ballasted with stone. On the Eastern and Western divisions, the company is putting up new telegraph lines which make a fine appearance."

"On the Middle Division, St. Mary's Hill is being graded for double track. It is being done by contract, and it is expected it will be ready for the iron by next spring, when similar work will be done on the other divisions."

#### Springfield & Illinois Southeastern.

The time-table of November 4 shows one through mail train and one through freight daily between Beardstown and Shawneetown (228 miles), and one express between Beardstown and Flora, 153 miles, connecting at the latter point with the Ohio & Mississippi. Between Pana and Tower Hill, 6½ miles, the track of the Indianapolis & St. Louis Railroad is used; and from Shawneetown westward three miles the St. Louis & Southeastern uses the Springfield & Illinois Southeastern's track.

#### International.

A circular from the General Superintendent's office, dated at Hearne, Texas, October 31, says:

"The International Railroad is now open for passenger and freight business to Jacksonville, 120 miles east of Hearne."

"The distance from Jacksonville is but 15 miles to Rusk, 30 miles to Henderson and less than 60 miles to Longview."

"The running time from Galveston to Longview is now reduced to 45 hours by our route."

"Close stage connection for Longview and all points is made with the trains daily at Jacksonville, and the place is well supplied with lively horses and conveyances."

"It is expected to open the road to Troup, in Smith County, 20 miles further east, by the 15th of November next."

#### Boston & Oswego.

The survey of the line from Eagle Bridge westward to Salisbury Center, N. Y., has been completed, and lately a line has been run from Salisbury Center to the Utica & Black River Railroad at a point about a mile north of Alder Creek Station. The maximum grades are 45 feet to the mile going east and 56 going west, which are also the limits of the grades across Massachusetts.